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# CATALOGUE

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UNIVERSITY OF ILLINOIS

OF THE

## Maine State College



1894-1895

ORONO, MAINE

---

AUGUSTA

*Burleigh & Flynt, Printers to the State*  
1895





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OF THE

Maine State College



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*Burleigh & Flynt, Printers to the State*  
1895



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## CALENDAR.

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### FALL TERM, 1894.

September	3, Monday,	Before-term examinations begin.
September	4, Tuesday,	Entrance examinations begin.
September	5, Wednesday,	Fall term begins.
October	5, Friday,	} Annual military encampment.
October	12, Friday,	
November	27, Tuesday,	Meeting of the Board of Trustees.
November	29, Thursday,	} Thanksgiving recess.
December	2, Sunday,	
December	7, Friday,	Sophomore Prize Declamation.
December	18, Tuesday,	Term examinations begin.
December	20, Thursday,	Term ends.

### SPRING TERM, 1895.

February	4, Monday,	Before-term examinations begin.
February	5, Tuesday,	Entrance examinations begin.
February	6, Wednesday,	Spring term begins.
February	22, Friday,	Washington's birthday.
April	25, Thursday,	Fast day.
May	10, Friday,	Arbor day.
May	30, Thursday,	Decoration day.
May	31, Friday,	Ivy day.
June	1, Saturday,	Senior vacation begins.
June	5, Wednesday,	Field day of the agricultural departments.
June	15, Saturday,	Junior exhibition.
June	16, Sunday,	Baccalaureate sermon.
June	17, Monday,	Convocation.
June	17, Monday,	Class day.
June	17, Monday,	Commencement oration.



June	18, Tuesday,	Meeting of the Board of Trustees.
June	18, Tuesday,	Exhibition drill.
June	18, Tuesday,	Receptions by the fraternities.
June	18, Tuesday,	Reception by the President.
June	19, Wednesday,	Commencement.
June	19, Wednesday,	Commencement dinner.
June	19, Wednesday,	Meeting of the Alumni Association.
June	19, Wednesday,	Commencement concert.
June	20, Thursday,	Entrance examinations begin.

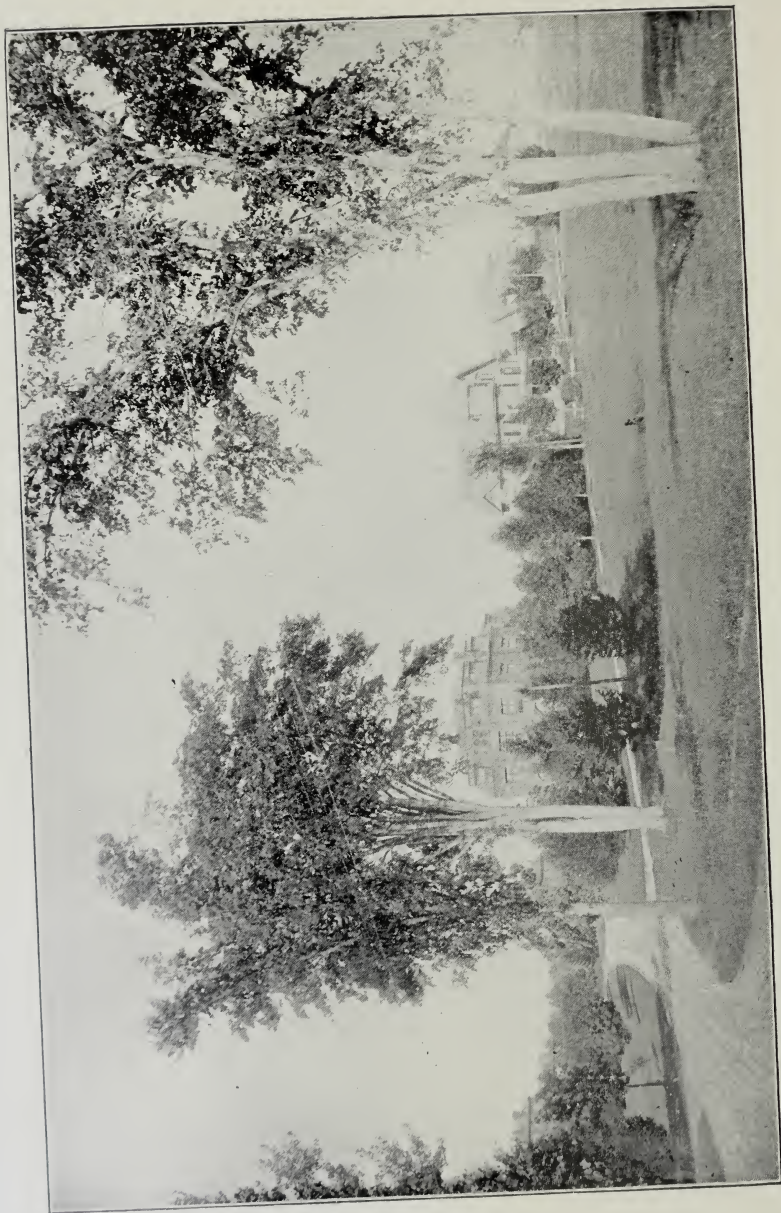
## FALL TERM, 1895.

September	2, Monday,	Before-term examinations begin.
September	3, Tuesday,	Entrance examinations begin.
September	4, Wednesday,	Fall term begins.
October	4, Friday,	} Annual military encampment.
October	11, Friday,	
November	26, Tuesday,	Meeting of the Board of Trustees.
November	28, Thursday,	} Thanksgiving recess.
December	1, Sunday,	
December	6, Friday,	Sophomore Prize Declamation.
December	17, Tuesday,	Term examinations begin.
December	19, Thursday,	Term ends.

## SPRING TERM, 1896.

February	3, Monday,	Before-term examinations begin.
February	4, Tuesday,	Entrance examinations begin.
February	5, Wednesday,	Spring term begins.
June	18, Wednesday,	Commencement.





ENTRANCE TO CAMPUS.

## THE MAINE STATE COLLEGE.

## ESTABLISHMENT.

By an Act of Congress, approved July 2, 1862, it was provided that there should be granted to the several States public lands, "thirty thousand acres for each Senator and Representative in Congress," from the sale of which there should be established a perpetual fund "the interest of which shall be inviolably appropriated, by each State which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The Act forbade the use of any portion of the principal or interest of this fund, for the purchase, erection, or maintenance of any building or buildings; and the several States claiming and taking the benefit of the provisions of the Act were required, "to provide within five years not less than one college" for carrying out the purposes of the Act.

In 1863, the State accepted this grant, and by an Act of the Legislature, passed in 1865, Samuel F. Perley, Hannibal Hamlin, and fourteen other persons were "constituted a body politic and corporate, by the name of the Trustees of the State College of Agriculture and the Mechanic Arts, with power to establish and maintain such a college as is provided for in the Act of Congress, and they were made entitled to receive the income accruing "from the funds granted to the State by the Act of Congress aforesaid." To the Trustees was granted the right to receive and hold donations or benefactions, to select the professors and other

officers of the college, to establish the conditions for admission, to lay out courses of study, to grant degrees, and to exercise other usual powers and privileges.

To the Governor and Council was granted the power, "at all times, by themselves, or such committee as they shall appoint, to examine into the affairs of the College, and the doings of the trustees, and to inspect all their records and accounts, and the buildings and premises occupied by the College."

It was provided that the College should teach such studies, in addition to those required by the Act of Congress, as the facilities would permit. Military instruction was explicitly ordered, and the adjutant general of the State was authorized to furnish arms and equipment for military drill, and directed to "furnish to the College a United States flag."

Tuition was made free, and the trustees and all persons employed by them, were directed to make the expenses of students as small as possible.

### ENDOWMENT AND INCOME.

The State of Maine received, under the Act of Congress, two hundred and forty thousand acres of public land, from which the College has realized an endowment fund of about \$131,000. To this have been added \$100,000, by the bequest of Abner Coburn of Skowhegan, who was for many years president of the Board of Trustees.

The town of Orono contributed \$8,000, and the town of Oldtown \$3,000 for the purchase of the site on which the college buildings stand. The State has appropriated about \$250,000, mostly for the material equipment.

Under an Act of Congress approved March 2, 1887, the College receives \$15,000 annually for the maintenance of its experimental work in agriculture. This is in charge of the department known as the Agricultural Experiment Station.

Under an Act of Congress approved August 30, 1890, the College received for its more complete endowment and maintenance "the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety." The Act provided that this amount should be increased by one thousand dollars each year until the annual appropriation should reach twenty-five thousand dollars, and then remain at this sum.

## THE BOARD OF TRUSTEES.

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Term Expires.

THE HON. HENRY LORD, *President*, Bangor, ... April 17, 1901.

THE HON. WILLIAM THOMAS HAINES, B. S.,

LL. B., *Secretary*, Waterville, ..... Dec. 30, 1895.

RUTILLUS ALDEN, Winthrop, ..... April 17, 1895.

THE HON. CHARLES PLUMMER ALLEN, B. S.,

Presque Isle, ..... April 17, 1896.

THE HON. BENJAMIN FRANKLIN BRIGGS,

Auburn, ..... April 17, 1897.

GREENVILLE JEFFERSON SHAW,

Hartland, ..... April 17, 1898.

THE HON. RUSSELL BENJAMIN SHEPHERD,

Skowhegan, ..... April 17, 1899.

ARTHUR LEE MOORE, B. S.,

Limerick, ..... April 17, 1900.

## EXECUTIVE COMMITTEE.

TRUSTEES LORD, HAINES AND ALLEN.

## TREASURER.

GEORGE HERBERT HAMLIN, Orono.



## EXAMINING COMMITTEES.

## COMMITTEE ON THE FINAL EXAMINATIONS.

THE HON. BENJAMIN WALKER MCKEEN.

THE REV. WILBUR FISK HOLMES, M. A.

THE HON. SAMUEL WORCESTER MATTHEWS, M. A.

THE REV. CHARLES FREDERICK ALLEN, D. D.

MERRITT CALDWELL FERNALD, Ph. D.

## COMMITTEE ON THE JUNIOR EXHIBITION.

HENRY KNOX WHITE, M. A.

STEPHEN HARDY POWELL.

THOMAS STONE BURR, B. A.

## COMMITTEE ON THE PRENTISS DECLAMATION PRIZE.

STEPHEN HARDY POWELL.

THE REV. NATHAN SOUTHWICK HILL, M. A.

THE REV. PEARLEY JOSEPH ROBINSON, B. D.

## COMMITTEE ON THE LIBBEY PRIZE.

THE HON. BENJAMIN WALKER MCKEEN.



## THE EXPERIMENT STATION COUNCIL.

---

TRUSTEE RUTILLUS ALDEN, .....	Winthrop.
TRUSTEE BENJAMIN F. BRIGGS, .....	Auburn.
PRESIDENT, ABRAM W. HARRIS, Sc. D., <i>President</i> , ...	Orono.
PROFESSOR FRANCIS L. HARVEY, Ph. D., .....	Orono.
DIRECTOR WHITMAN H. JORDAN, M. S., <i>Secretary</i> , ..	Orono.
REPRESENTATIVE D. H. KNOWLTON, M. A.,	
State Pomological Society, ....	Farmington.
REPRESENTATIVE B. WALKER McKEEN,	
State Board of Agriculture .....	Fryeburg.
TRUSTEE ARTHUR L. MOORE, B. S., .....	Limerick.
PROFESSOR WELTON M. MUNSON, M. S., .....	Orono.
PROFESSOR FREMONT L. RUSSELL, V. S., .....	Orono.
REPRESENTATIVE O. O. CROSBY,	
Maine State Grange, .....	Albion.

## THE FACULTY.

---

ABRAM WINEGARDNER HARRIS, Sc. D., ..... Campus.  
President.

GEORGE HERBERT HAMLIN, C. E., ..... Main Street.  
Professor of Civil Engineering.

ALFRED BELLAMY AUBERT, M. S., ..... Campus.  
Professor of Chemistry.

ALLEN ELLINGTON ROGERS, M. A., ..... College Street.  
Professor of History, Logic, and Civics.

WALTER FLINT, M. E., ..... Bennoch Street.  
Professor of Mechanical Engineering.

WHITMAN HOWARD JORDAN, M. S., ..... Main Street.  
Professor of Agriculture and Director of  
the Experiment Station.

JAMES MONROE BARTLETT, M. S., ..... College Street.  
Chemist of the Experiment Station.

FRANCIS LEROY HARVEY, Ph. D., ..... Forest Avenue.  
Professor of Natural History and Ento-  
mologist of the Experiment Station.

LUCIUS HERBERT MERRILL, B. S., ..... Forest Avenue.  
Chemist of the Experiment Station.

\*JAMES NORRIS HART, C. E., ..... North Main Street.  
Professor of Mathematics and  
Astronomy.

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\* On leave.

HOWARD SCOTT WEBB, B. M. E., .....North Main Street.  
Instructor in Shop-work, Secretary  
and Registrar.

FREMONT LINCOLN RUSSELL, V. S.,.....College Street.  
Veterinarian of the Experiment Station.

NATHAN CLIFFORD GROVER, B. C. E., .....Campus.  
Assistant Professor of Civil Engineering.

HARRIET CONVERSE FERNALD, M. S., .....North Main Street.  
Librarian.

WELTON MARKS MUNSON, M. S., .....Campus.  
Professor of Horticulture and Horticulturist of  
the Experiment Station.

HORACE MELVYN ESTABROOKE, M. S., M. A., .....Main Street.  
Professor of Rhetoric and Modern  
Languages.

JAMES STACY STEVENS, Ph. D., .....Bennoch Street.  
Professor of Physics.

MARK LESLIE HERSEY, M. A., First Lieutenant,  
U. S. Infantry,.....Main Street.  
Professor of Military Science and Instructor  
in Physical Culture.

GILBERT MOTTIER GOWELL, M. S., .....Campus.  
Professor of Animal Industry.

DAVID WILDER COLBY, B. S., .....Campus.  
Instructor in Chemistry.

HARRIS PERLEY GOULD, B. S., .....Campus.  
Assistant in Horticulture in the Experiment  
Station.

ERNEST PITNEY CHAPIN, M. E., .....North Main Street.  
Instructor in Electrical Engineering.

GEORGE PARKER COWAN, B. C. E., .....Bangor.  
Tutor in Civil Engineering.

ALBERT JOSEPH DURGIN, ..... Pine Street.  
Assistant in Wood-work.

GEORGE HARRY HALL, B. M. E., ..... Oak Hall.  
Meteorological Observer in the Experiment  
Station.

## ADMISSION.

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Applicants for admission to the college must pass the required examinations, or present satisfactory certificates of fitness, and file with the Treasurer a bond for \$150 signed by two bondsmen, as security for the payment of dues to the college. No distinction is made in regard to sex or place of residence. Entrance may be made at any time. Candidates for advanced standing, unless they present certificates of fitness, are examined in the preparatory studies in addition to those previously pursued by the classes they propose to enter, or in other equivalent studies.

A student who has accomplished half or more of the preparatory course may be examined on that part, and receive credit therefor. In such a case, he will be examined, in any subsequent year in which he may present himself, only on those studies on which he has not already passed. But no credit will be given unless the candidate is able to pass on at least half of the preparatory course.

As the required work of the college includes an unusually large amount of mathematics, and since success in the engineering courses requires the ability to make easy use of the higher mathematics, it is desirable that students preparing for admission to the college be subjected to the most rigorous drill in this subject.

Attention is called to the need of careful preparation in English. This should include the rapid reading of numerous standard works of fiction, the careful reading of other standard works, the writing of themes based upon this reading, and the frequent writing of themes on simple and familiar subjects, with exercises in punctuation, capitalization, etc.

Persons who are not candidates for a degree, and who wish to take special studies, will be permitted to do so upon giving satis-

factory evidence that they are prepared to take the desired studies. If they subsequently desire to become candidates for a degree, or to take a regular course, they may be required to pass the entrance examinations.

No examinations are required for admission to the winter short courses.

### ADMISSION BY EXAMINATION.

Examinations are held at the college, beginning on the day before the opening of each term, and on the day after commencement. Examinations are also held, if desired, in each county of the State and in other places. The examinations in places other than the college are held on the day after commencement, and persons desiring examinations at such places must notify the President of the college not later than June 1.

To save expense to candidates, special local examinations will be given when satisfactory arrangements can be made. Upon request, questions will be sent to any principal, or other satisfactory person who will consent to conduct the examination for the accommodation of the candidate. The questions are to be submitted under the usual restrictions of a written examination, and the answers returned to the college accompanied by the indorsement of the examiner that the examination has been properly made. The student desiring to take advantage of this provision must secure the consent of a proper person to take charge of the examination, and make early request to the President of the college to have examination questions sent.

The examinations will cover the following topics :

ARITHMETIC.—Simple and denominate numbers; ratio and proportion; common and decimal fractions; percentage; metric system of weights and measures; square root. A satisfactory treatment of these subjects may be found in Wentworth and Hill's, Greenleaf's, or the Franklin Arithmetic. It is important that definite ideas of the units of the metric system should be obtained. A thorough drill in mental arithmetic with a book like Colburn's is recommended.

**ALGEBRA.**—Fundamental operations; use of parentheses; factoring; highest common factor; lowest common multiple; fractions, simple and complex; simple equations, with one or more unknown quantities; involution of monomials and polynomials; evolution of monomials and polynomials; the theory of exponents, with applications; radicals, including rationalization, imaginary quantities, properties of quadratic surds, square root of a binomial surd, and solution of equations containing radicals; quadratic equations; equations in the quadratic form; simultaneous quadratic equations; ratio and proportion; arithmetical progression; geometrical progression. A satisfactory treatment of these topics may be found in Greenleaf's *Elementary*, Newcomb's, Wells' *Academic* or Wentworth's *School Algebra*.

**PLANE GEOMETRY.**—The first five books of Chauvenet's, Wells', or Wentworth's *Geometry*. The preparation should include the solution of numerical exercises, the demonstration of original propositions, and the construction of geometrical figures in a neat and careful manner with dividers and ruler. The examination will include some propositions for original demonstration or construction.

**POLITICAL GEOGRAPHY.**—Location of continents, mountain ranges, peninsulas, isthmuses, islands, capes; location of oceans, bays, sounds, straits, lakes and rivers; location and boundaries of countries and states; location of important seaports, commercial cities and capitals; approximate latitude and longitude of important places.

**PHYSICAL GEOGRAPHY.**—Definition of terms; motions, form, size of the earth; magnetic action; physical features of the continents; relief forms; currents of air and water; volcanoes, earthquakes, geysers, etc.; forms of water; climate; drainage; tides; meteorology, clouds, rain, dew, etc.; glaciers and icebergs; races; metals and minerals; fauna and flora.

**PHYSIOLOGY.**—Cells and tissues, skeleton, muscles, blood and circulation, respiration, nutrition and digestion, lymphatic system, excretory organs, nervous system, special senses, hygiene.



ENGLISH.—Each candidate will be required to write a short essay upon a subject announced at the time of the examination. This essay will be expected to show a general familiarity with the works mentioned below, and will be examined with especial attention to accuracy of grammar, spelling, and punctuation. In 1895 subjects for this essay will be taken from two or more of the following works, candidates being required, however, to be prepared on all of them: Shakspeare's Merchant of Venice and Twelfth Night, Milton's L'Allegro, Il Penseroso, Comus, and Lycidas, Longfellow's Evangeline, the Sir Roger de Coverley Papers in the Spectator, Macaulay's Essay on Milton and Essay on Addison, Webster's First Bunker Hill Oration, Irving's Sketch Book, Scott's Abbot.

Beginning with 1896 the English requirements will be as follows:

I. *Reading and Practice.* Each candidate will be required to present evidence of a general knowledge of the substance of the books mentioned below and to answer simple questions on the lives of their authors. The examination will usually be the writing of a paragraph or two on each of several topics. The treatment of these topics is designed to test the power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of this test, the candidate may present an exercise book, certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

In 1896, this part of the examination will be based upon: Shakspeare's Midsummer Night's Dream, Defoe's History of the Plague in London, Irving's Tales of a Traveller, Scott's Woodstock, Macaulay's Essay on Milton, Longfellow's Evangeline, George Eliot's Silas Marner.

In 1897, it will be based upon: Shakspeare's As You Like It, Defoe's History of the Plague in London, Irving's Tales of a Traveller, Hawthorne's Twice Told Tales, Longfellow's Evangeline, George Eliot's Silas Marner.

In 1898 it will be based upon: Milton's Paradise Lost, Books I and II, Pope's Iliad, Books I and XXII, the Sir Roger de Coverley Papers in the Spectator, Goldsmith's Vicar of Wakefield, Coleridge's Ancient Mariner, Southey's Life of Nelson, Carlyle's Essay on Burns, Lowell's Vision of Sir Launfal, Hawthorne's House of the Seven Gables.

II. *Study and Practice.* This part of the examination presupposes a careful study of the works named below. The examination will be upon subject-matter, form, and structure; and will also test the candidate's ability to express his knowledge with clearness and accuracy.

In 1896, this part of the examination will be based upon: Shakspeare's Merchant of Venice, Milton's L'Allegro, Il Penseroso, Comus, and Lycidas, Webster's first Bunker Hill Oration.

In 1897, it will be based upon Shakspeare's Merchant of Venice, Burke's Speech on Conciliation with America, Scott's Marmion, Macaulay's Life of Samuel Johnson.

In 1898, it will be based upon Shakspeare's Macbeth, Burke's Speech on Conciliation with America, DeQuincey's Flight of a Tartar Tribe, Tennyson's Princess.

UNITED STATES HISTORY.—The voyages and discoveries of Columbus and of the other early navigators and adventurers; the circumstances that led to the founding of the different colonies; the causes, leading events, and results of the War of the Revolution; the Articles of Confederation and the causes leading to the adoption of our present Constitution; the extent of the United States at the close of the Revolution and additions made to our national territory since; the National and State governments; the causes and results of the second war with England, and of the war with Mexico; the causes, leading events and results of the War of the Rebellion; history of the United States since the close of this war.

ENGLISH GRAMMAR.—Definition of terms; formation of plural number and possessive case of nouns; inflection of pronouns; comparison of adjectives and adverbs; the agreement of verbs with their subjects, and of pronouns with their antecedents; the synopsis of the verb; the analysis of sentences; the application of the rules of syntax. Special attention should be given to punctuation and use of capital letters.

BOTANY.—In 1896, candidates will be examined in elementary botany. Any course will be satisfactory which brings the pupil into contact with plants. In schools possessing compound microscopes work should be done such as is presented in Bessey's

Essentials of Botany, Arthur, Barnes and Coulter's Handbook of Plant Dissection, or Campbell's Structural and Systematic Botany. In case no compound microscopes are available such a text as Gray's Text Book, revised edition, should be used, as both recitation book and laboratory guide.

### ADMISSION BY CERTIFICATE OF FITNESS.

Any preparatory school whose course of instruction covers the requirements for admission to the college, may be admitted to its list of approved schools. Application for such approval should be made to the President of the college, and must be accompanied by a detailed statement of the course of study, or a catalogue of the school.

A committee of the college faculty will examine the course of study and the methods of instruction, and upon the favorable report of the committee, the school will be placed upon the list of approved schools.

Candidates for admission to the college from these schools will be admitted to the Freshman Class upon the certificate of the principals, showing that the required studies have been completed satisfactorily. Certificates must be made out on blanks furnished by the college. Certificates will not be received in place of examinations for work of the Freshman year.

A school once entered upon the approved list, will remain there until the college gives notice of unsatisfactory results.

### APPROVED SCHOOLS.

Bangor High School, *Bangor*,

Henry K. White, M. A., Principal.

Bar Harbor High School, *Bar Harbor*,

Prescott Keyes, Jr., B. C. E., Principal.

Bath High School, *Bath*,

H. E. Cole, Principal.

Boylston High School, *Eastport*,

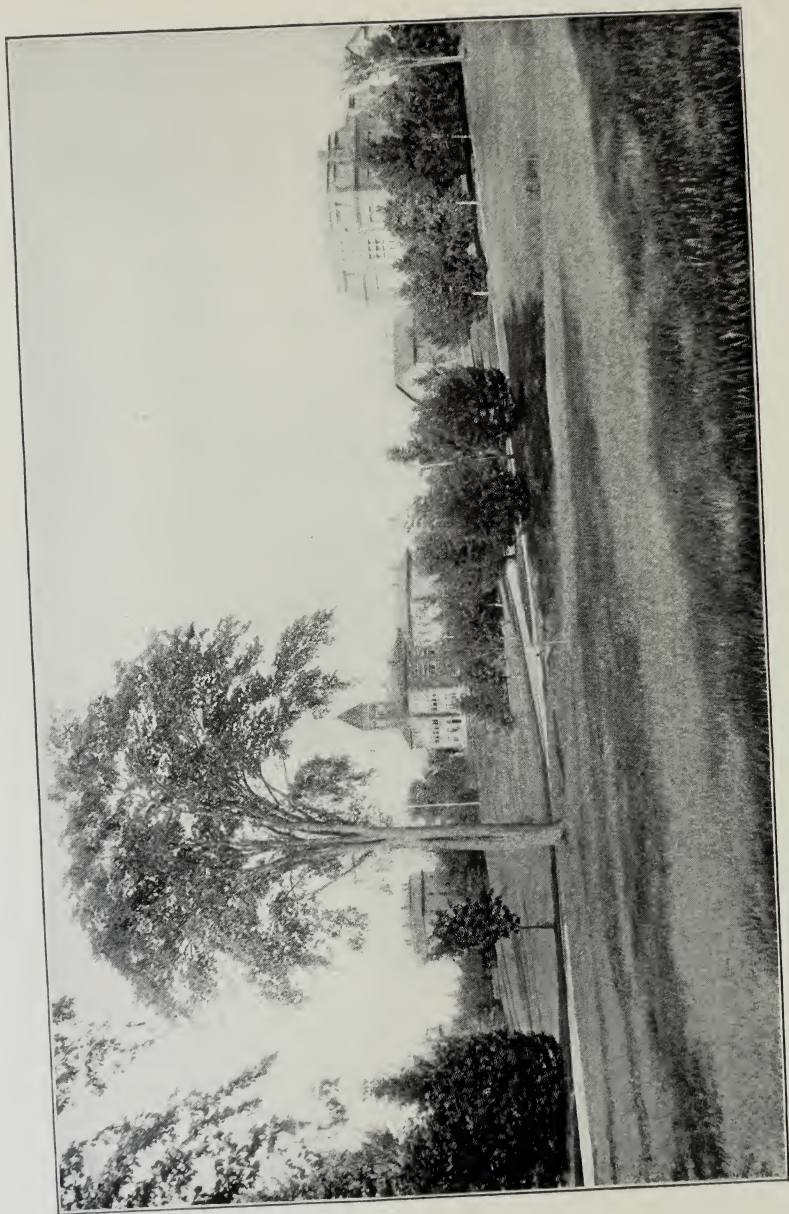
J. B. Warren, M. A., Principal.

- Brewer High School, *Brewer*,  
F. W. Freeman, M. A., Principal.
- Bridgton Academy, *North Bridgton*,  
G. H. Larrabee, M. A., Principal.
- Coburn Classical Institute, *Waterville*,  
Frank W. Johnson, M. A., Principal.
- Cony High School, *Augusta*,  
A. H. Brainard, M. A., Principal.
- Corinth Academy, *East Corinth*,  
A. W. Meserve, Principal.
- Deering High School, *Deering*,  
Edgar H. Crosby, M. A., Principal.
- Dover High School, *Dover*,  
C. N. Blanchard, Principal.
- East Maine Conference Seminary, *Bucksport*,  
Rev. A. F. Chase, Ph. D., President.
- Ellsworth High School, *Ellsworth*,  
W. H. Dresser, B. A., Principal.
- English High School, *Boston, Mass.*,  
F. A. Waterhous, Head Master.
- Foxcroft Academy, *Foxcroft*,  
E. L. Sampson, M. A., Principal.
- Framingham High School, *Framingham, Mass.*,  
J. H. Parsons, Principal.
- Gardiner High School, *Gardiner*,  
William L. Powers, Principal.
- Greeley Institute, *Cumberland Center*,  
Fairfield Whitney, M. A., Principal.
- Hampden Academy, *Hampden*,  
Albert Robinson, B. A., Principal.
- Lincoln Academy, *West Poland*,  
F. E. Hanscom, Principal.
- Maine Wesleyan Seminary, *Kent's Hill*,  
Rev. G. W. Gallagher, D. D., President.
- Milo High School, *Milo*,  
George H. Gould, Principal.
- Monson Academy, *Monson*,  
L. E. Moulton, Principal.

- North Yarmouth Academy, *Yarmouth*,  
Rev. P. B. Snow, M. A., Principal.
- Norway High School, *Norway*,  
Charles P. Barnes, Principal.
- Orono High School, *Orono*,  
S. H. Powell, Principal.
- Portland High School, *Portland*,  
Albro E. Chase, Principal.
- Ricker Classical Institute, *Houlton*,  
A. M. Thomas, M. A., Principal.
- Rockland High School, *Rockland*,  
Harry Landes, Principal.
- Skowhegan High School, *Skowhegan*,  
W. N. Donovan, B. A., Principal.
- Thornton Academy, *Saco*,  
Edwin P. Sampson, Principal.
- Waterville High School, *Waterville*,  
Dennis E. Bowman, Principal.
- Washington Academy, *East Machias*,  
I. H. Robinson, Principal.
- Westbrook High School, *Westbrook*,  
M. H. Small, Principal.
- Yarmouth High School, *Yarmouthville*,  
H. M. Moore, B. A., Principal.







VIEW OF CAMPUS.



## THE MATERIAL EQUIPMENT.

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WINGATE HALL.—The most conspicuous building on the campus, Wingate Hall, named in honor of William P. Wingate of Bangor, who was long an honored member of the board of trustees, is a three-story brick structure rectangular in form, with a handsome tower furnished with a clock. It was erected for the departments of civil and mechanical engineering, but is at present occupied in part by other departments. On the ground floor are two large designing rooms, recitation rooms, armory, instrument rooms, and private offices for the professors of civil and mechanical engineering. On the second floor is a handsome room occupied by the Young Men's Christian Association, the recitation rooms of the professors of mathematics, modern languages, and physics, an apparatus room, and two private offices. On the third floor are the large drawing rooms, well lighted, and said to be the best of their kind in New England. In the basement are the testing room and a large room used as an electrical laboratory. The testing room contains a Riehle testing machine of 60,000-pounds capacity, a cement testing machine, and a dynamo capable of supplying power for twenty-five lamps. The testing machines and the dynamo are driven by the engine used for forcing air through the building. The electrical laboratory is fitted up for twenty students and contains the instruments of precision used in the Junior year.

OAK HALL.—North of Wingate Hall is Oak Hall, named in honor of Lyndon Oak of Garland, for many years a useful member of the board of trustees, a substantial four-story brick building used as a dormitory. It contains forty-nine rooms for students, bath rooms and reading room, is heated by steam, supplied with water, and lighted by electricity. Connected with Oak Hall by a corridor is the boarding house.

**THE CHEMISTRY BUILDING.**—The Chemistry Building, a two-story brick building, south of Wingate Hall, contains twelve large, well lighted and well arranged rooms devoted to the needs of the department of chemistry. On the first floor are the qualitative and quantitative laboratories, supplied with fume closets, water and gas; and the quantitative laboratory has in addition, steam cups for evaporation, and drying closets. On this floor are a recitation room, a balance room, supplied with an assay balance and eight fine analytical balances, a stock room containing all necessary apparatus, and the office and private laboratory of the professor of chemistry. On the second floor are a large lecture room, the museum of chemistry, the laboratory of mineralogy, equipped with the apparatus necessary for the determination of minerals, and a room for use in spectroscopic and sugar work, gas analysis, water analysis, and original investigation. In this room is also an outfit for bacteriological examination of water, including two Reichert's microscopes, with six objectives, thermostats, and heating apparatus, and sterilizers for steam and dry heat, together with all necessary accessories. A room under the roof is fitted up for photographic work; adjoining this is a well equipped dark room. The photographic outfit includes a burnisher, copying camera, an 8 by 10 camera with Zeiss anastigmatic lens for use in preparing topographical maps for engineers from photographs. In the basement is an assay laboratory supplied with large and small furnaces, a crusher, grinding plate, etc.

The department of chemistry is well supplied with lecture apparatus for illustrative purposes, the latest additions being a large induction coil, and several of the newest forms of Hoffman's apparatus for the electrolytic decomposition and synthesis of liquids and gases.

The greater part of the chemical library, including the current and bound volumes of magazines, is kept in the Chemistry Building.

**COBURN HALL.**—Directly south of the Chemistry Building is Coburn Hall, named in honor of Abner Coburn of Skowhegan, the chief benefactor of the College. It is a brick building, three stories in height and finished in hard woods. On the first floor is an admirably equipped physical laboratory, a laboratory and

a lecture room for the department of agriculture, and the library. The latter is a well lighted room about forty feet square, fitted up with the best modern library furniture. About 9,000 volumes, exclusive of pamphlets, are on its shelves, and the number of books is rapidly increasing. On the walls are portraits of Governor Coburn, President Allen, and President Fernald. On the second floor are the botanical and entomological laboratories and lecture rooms for the professor of natural history and the professor of civics. Directly over the library is the museum, a handsome room extending through two stories. The collections exhibited here, already large and constantly increasing, will soon outgrow their present quarters. On the third floor is the college chapel capable of seating four hundred persons.

**THE MACHINE SHOP.**—In the rear of the Chemistry Building is the Machine Shop, a wooden building 125 feet long, and two stories high, containing a foundry, forge shop, carpenter shop, machine shop, and tool room. The following is a partial list of the equipment of the shops: Foundry—one 18-inch cupola furnace; six 50-pound ladles; one 100-pound ladle; one 200-pound ladle; eight sets of slickers, trowels, rammers, shovels, bellows, etc.; fifty flasks. Forge shop—eighteen power blast forges; champion hand forge; eighteen anvils; eighteen full sets of tongs and cutters; a set of heading tools; number 3 Sturtevant blower; number 5 Buffalo exhaust fan; blacksmith's vise; four blacksmith's 10-pound sledges; 6-pound sledge. Machine shop—seven engine lathes; Gray planer; Flather planer; Hendey shaper; number 14 Brainard milling machine; Prentiss drill; Slate sensitive drill; double head emery grinder; full sets of taps, dies, reamers, mandrels, drills, milling cutters, wrenches, chucks, and lathe dogs; benches and vises for sixteen men. Carpenter shop—one Colburn saw bench, with attachments; one ordinary saw bench; jig saw; 20-inch planer; 12-inch buzz planer; two 16-inch pattern lathes, with two sets of turning tools, calipers, rests, etc.; little giant tool grinder; nineteen sets of carpenter's tools, work benches, vises, and cases for tools. Power for running the machinery is furnished by a 10-horse-power steam engine.

**THE EXPERIMENT STATION.**—South of the Machine Shop stands a substantial two-story brick building which is devoted to the uses of the Agricultural Experiment Station. On the ground floor are the reading room, reagent room, Directors' private laboratory, nitrogen room, and the laboratory used in the analysis of fertilizers, and in original investigation. On the second floor are the general office, the director's private office, the bacteriological laboratory, and a storage room for books and pamphlets. The building is heated by steam, lighted by gas, and thoroughly equipped with apparatus.

**THE HORTICULTURAL BUILDING.**—East of the Experiment Station is the Horticultural Building, consisting of a head-house and three greenhouses. In the head-house are the office of the professor of horticulture, a working room, a seed storage room, a photographing room, an attendant's room, and a room used for storage. The main greenhouse, 20 feet by 100 feet, is devoted to the use of the Experiment Station, and to the instruction of students. A second greenhouse, 20 feet by 80 feet, running parallel to the first, contains a potting room and a cold-forcing room. The third greenhouse is designed for investigations in plant nutrition. In the south end of this building is the conservatory.

**THE DAIRY BUILDING.**—The Dairy Building, 50 feet by 42 feet, contains a milk room, a butter room, a cheese room, a cold storage room, a cheese curing room, a lecture room, the office of the professor of animal industry, and a laboratory. It is supplied with a Sharpless cream separator, a United States butter extractor, a De Laval hand cream separator, creamers, churns, butter workers, cream and cheese tempering vats, weighing tanks, Babcock testers and other appliances necessary for teaching the most approved methods of handling milk, cream, butter and cheese. The building is heated by steam and supplied with hot and cold water. Power is furnished by a 6-horse-power engine, and by a baby tread horse power.

**OTHER BUILDINGS.**—In addition to the buildings already described, there are nine others devoted to various college purposes. These include the President's house, two fraternity club houses, a chapter house, the gymnasium, the farm house, two large barns, and the stable.

## THE COURSES OF INSTRUCTION.

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The Maine State College is a school of science and technology. It offers no instruction in the ancient languages, but gives a full list of courses in the natural and exact sciences, and in their technical applications. None of its courses are without a full complement of those studies which are especially useful for general training and culture.

The first year, which is practically the same for all courses, is largely taken up with mathematics, natural science and English, which form the basis for all the future work. Extended courses in chemistry and physics are required of all students, and especial attention is given by students in all departments of the College to the study of English, modern languages and civics.

THE COURSES OF STUDY LEADING TO DEGREES are eight, each requiring four years for completion.

The Scientific Course is the basis course, from which the technical courses diverge. It is designed for those who seek the College for general culture and training. It differs from the usual college course by omitting Latin and Greek, and substituting French, German, English and scientific studies. It is substantially identical with the course of the same name now found in the curriculum of the more progressive colleges of the country.

The Agricultural Course is designed for those who wish to become farmers, teachers or investigators in agricultural science, or editors of agricultural papers. In this course, agriculture is treated as a branch of technology. For those who wish practical rather than scientific training in agriculture, shorter courses are provided.

The Civil Engineering Course is designed for those who wish to become surveyors, railroad, highway, hydraulic, bridge or sanitary engineers.



The Mechanical Engineering Course is designed for those who wish to become managers of manufacturing plants, or general mechanical engineers.

The Electrical Engineering Course is designed for those who wish to fit themselves for any line of practical work in electricity.

The Chemical Course is designed for those who wish to become professional analysts, teachers of chemistry, or managers of industries in which an extensive knowledge of chemistry is needed.

The Pharmacy Course is designed for those who wish to prepare themselves for the practice of pharmacy, and at the same time obtain a broad general training.

The Preparatory Medical Course is designed for those who propose to take up the study of medicine after graduation and wish to so shape their college work as to furnish the best preparation.

THE SHORT COURSES are as follows:

The Pharmacy Course, of two years, is designed for those who wish to obtain a practical training in pharmacy in the shortest time.

The Course in Library Economy, of one year, is designed for those who wish instruction in the care and management of libraries.

The Electrical Engineering Course, of two years, is designed for those who wish only a practical training in electrical engineering.

The Agricultural Courses, of one year and of two years, are designed for farmers.

The Training Courses, of six weeks each, in General Agriculture, in Dairying, and in Horticulture, are planned for farmers.

The Farm Course is a series of lectures, on agricultural topics, not less than five in number, to be delivered at any place in the State where a class may be organized under an agreement to attend regularly and pay the expenses.

DEGREES.—The scientific, the agricultural, the chemical, the preparatory medical and the pharmacy courses lead to the degree of Bachelor of Science; the civil engineering course leads to the degree of Bachelor of Civil Engineering; the mechanical and electrical engineering courses lead to the degree of Bachelor of Mechanical Engineering. Three years after graduation, on

presentation of a satisfactory thesis and proof of professional work or further study, the Bachelors receive the corresponding Master's degree.

Those who complete in a satisfactory manner the course in Library Economy, the courses of one and two years in Agriculture, and the course of two years in Pharmacy receive certificates. Three years after graduation, the graduates of the course of two years in Pharmacy, on presentation of a satisfactory thesis and proof of professional work or further study receive the degree of Graduate in Pharmacy. The graduates in the long course may receive this degree, if they desire it, one year after graduation on proof of professional work or further study. This will not prevent them from receiving the degree of Master of Pharmacy, three years after graduation.

### EXPLANATION OF TABLES.

The College year is divided into two terms, the fall term of sixteen weeks and the spring term of twenty weeks.

The quota of studies prescribed for each student is such as to require, for a minimum, seventeen hours, and for a maximum, twenty hours of class-room work each week, exclusive of compositions and declamations. The tables are made so as to require approximately twenty hours work each week. Laboratory work and other exercises not requiring preparation count as half time—that is, two hours in the laboratory are counted as equivalent to one hour. The hours devoted to such studies are marked with a dagger (†) in the tables.

A small letter in parenthesis preceding a study indicates that it is an elective. The student selects one study from the group preceded by the same letter.

The capital letters and numerals following a study refer to the explanatory statements to be found on the pages given. The letters refer to the departments of instruction, the numbers to the courses under them.

The Roman numerals and letters in parenthesis following certain studies indicate that the studies followed by the same Roman numeral fill up a unit of time—a term or a year, as the case may be,—one study beginning when another ends, the studies following in the order indicated by the letters accompanying the numeral.

### STUDIES OF THE FRESHMAN YEAR, ALL COURSES.

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
Solid Geometry— <i>Course A 1, page 55</i> .....	8	5.0		
Algebra— <i>Course A 2, page 55</i> .....	8	5.0	8	5.0
Trigonometry— <i>Course A 3, page 55</i> .....			12	5.0
Rhetoric— <i>Course B 1, page 57</i> .....	16	2.5	20	2.5
(a) French— <i>Courses B 4 and B 5, page 58</i> .....	16	5.0	20	5.0
(a) German— <i>Courses B 8 and B 9, page 58</i> .....	16	5.0	20	5.0
Chemistry— <i>Course E 1, page 62</i> .....	16	2.5	20	2.5
(b) Botany— <i>Course I 6, page 72</i> .....			20	2.5
Free-hand Drawing— <i>Course J 1, page 72</i> .....	16	†5.0		
(b) Mechanical Drawing— <i>Course J 2, page 72</i> .....			20	†5.0
Mathematical Drawing— <i>Course J 3, page (I b) 72</i> ....	3	†3.0	7	†3.0
Military Science— <i>Course N 1, page 81</i> .....	16	†2.0	20	†2.0
Military Science— <i>Course N 2, page (I a) 82</i> ..	13	†3.0		
Military Science— <i>Course N 2, page (I c) 82</i> .....			13	†3.0



## THE SCIENTIFIC COURSE.

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This course is planned in the belief that the true beginning of a liberal education lies in a careful study and a thorough appreciation of our own language and literature. These, supplemented by courses in French and German, by careful training in Economics, History, and the elements of International, Constitutional, and Municipal Law, and by general scientific knowledge and attainments, furnish a substantial foundation for a broad and general culture.

This course is designed to prepare the student for those professions and callings which demand a broad general knowledge and a wider acquaintance with literature and history than is possible for those students to acquire whose time is chiefly devoted to technical studies. It is believed to be especially adapted to the need of those who expect to engage in the teaching of the natural, social, or political sciences, or to engage in general business, banking or other large industries in executive or managing positions.

Upon graduation the student receives the degree of Bachelor of Science; three years later, on proof of satisfactory advancement and on presentation of a thesis embodying original work or investigation, he receives the degree of Master of Science.

## THE SCIENTIFIC COURSE.

For the Freshman Year see page 32.

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
SOPHOMORE YEAR.				
Analytical Geometry—Course A 4, page 55 (Ia).....	8	5.0		
*Analytical Geometry—Course A 5, page 55 (Ib).....	8	5.0		
*Calculus—Course A 7, page 56.....			20	2.5
*Anglo-Saxon—Course B 2, page 57.....			20	2.5
(a) French—Courses B 4 and B 5, page 58.....	16	5.0	20	5.0
(a) German—Courses B 8 and 9, page 58.....	16	5.0	20	5.0
General History—Course D 1, page 60.....	16	1.0	20	3.0
*Organic Chemistry—Course E 4, page 63 (Ib).....	8	5.0		
*Laboratory Chemistry—Course E 10, page 64 (Ib).....	8	†10		
Physics—Courses F 1 and F 2, page 65.....	16	3.0	20	4.0
Laboratory Physics—Course F 3, page 65.....	16	†4.0		
Laboratory Physics—Course F 4, page 65.....			10	†4.0
*Mechanics—Course F 5, page 66.....			10	2.0
Cryptogamic Botany—Course G 1, page 66.....	16	2.5		
Laboratory Botany—Course G 2, page 67.....			10	†4.0
*Bacteriology—Course H 13, page 71 (IIa).....			10	†5.0
*Histology—Course I 7, page 72 (IIb).....			10	†5.0
Military Science—Course N 2, page 82 (IIIa).....	13	†3.0		
Military Science—Course N 3, page 82 (IIIb).....	3	1.5	7	1.5
Military Science—Course N 2, page 82 (IIIc).....			13	†3.0
JUNIOR YEAR.				
*Calculus—Course A 8, page 56.....	16	5.0		
(a) French—Course B 6, page 58.....	16	2.5		
(b) French—Course B 7, page 58.....			20	2.5
(a) German—Course B 10, page 58.....	16	2.5		
(b) German—Course B 11, page 58.....			20	2.5
*Spanish—Course B 12, page 59.....			20	2.5
*Italian—Course B 13, page 59.....			20	2.5
Psychology—Course C 1, page 59 (IVa).....			10	5.0
Logic—Course C 2, page 59 (IV b).....			10	5.0
English Literature—Course C 3, page 59.....	16	5.0		
General Literature—Course C 4, page 60.....			20	5.0
Library Work—Course B 3, page 57, and C 5, page 60.....	16	†5.0	20	†4.0
English History—Course D 2, page 60.....	16	2.5		
American History—Course D 3, page 60.....			20	2.0
*Laboratory Chemistry—Course E 10, page 64.....			20	†4.0
*Physics—Course F 6, page 66.....	16	2.5		
*Mathematical Physics—Course F 8, page 66.....	16	2.5		
Invertebrate Zoology—Course G 5, page 67.....	16	2.5		
Laboratory Zoology—Course G 6, page 67.....	16	†5.0		
*Comparative Vertebrate Zoology—Course G 7, page 68.....	16	3.5		
*Laboratory Zoology—Course G 8, page 68.....			20	†4.0
Military Science—Course N 2, page 82 (Va).....	13	†3.0		
Military Science—Course N 3, page 82 (V b).....	3	1.5	7	1.5
Military Science—Course N 2, page 82 (Vc).....			13	†3.0

\* Elective studies from which the student must select enough to give him as nearly as possible twenty hours of work per week.

## THE SCIENTIFIC COURSE—CONCLUDED.

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
SENIOR YEAR.				
*Descriptive Astronomy— <i>Course A 9, page 56</i> .....			20	2.5
*Practical Astronomy— <i>Course A 10, page 56</i> .....			20	†3.0
Library Work— <i>Courses B 3, page 57, and C 5, page 60</i> ....	16	2.5	20	†5.0
Political Economy— <i>Course D 4, page 61</i> .....			20	5.0
Constitution— <i>Course D 6, page 61</i> .....	16	5.0		
*International Law— <i>Courses D 5 and D 7, pages 61 and 62</i>			20	4.0
Philosophy of History— <i>Course D 8, page 62</i> .....	16	2.5		
*History of Philosophy— <i>Course D 9, page 62</i> .....	16	2.5		
Anthropology— <i>Course D 10, page 62</i> .....			20	2.0
*Photography— <i>Course E 8, page 63</i> ....	16	†2.0		
*Mineralogy— <i>Course E 9, page 63</i> .....	16	†3.0		
Advanced Physiology— <i>Course G 3, page 67</i> .....			20	2.5
Laboratory Physiology— <i>Course G 4, page 67</i> .....			20	2.0
Geology— <i>Course G 10, page 68</i> .....	16	2.5		
Military Science— <i>Course N 2, page 82 (VIa)</i> .....	13	†3.0		
Military Science— <i>Course N 4, page 82 (VI b)</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82 (VIc)</i> .....			13	†3.0

\* Elective studies from which the student must select enough to give him as nearly as possible twenty hours of work per week.

## THE CHEMICAL COURSE.

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The course in chemistry is designed for those who wish to become professional chemists and analysts, teachers of chemistry, or chemists and managers of industries in which an extensive knowledge of chemistry is important. Especial attention is given to the preparation of students for the work of the agricultural experiment stations. The course is so arranged that it furnishes an admirable preparation for the study of medicine. In addition to a thorough knowledge of chemistry, the student acquires, in his biological studies, knowledge of comparative anatomy, and of the lower forms of life, and in his work in the chemical laboratory, facility in the manipulation of chemical apparatus and the microscope. These are of the greatest importance to the physician, though the medical student as such can devote but comparatively little time to them.

The lectures and recitations are closely associated with practical work in the laboratories where the students, under the guidance of the instructors, become acquainted with the methods and apparatus of qualitative analysis and of metallurgy. The student is drilled in the use of chemical apparatus, accurate observation and careful interpretation of directions.

In order to familiarize the student with chemical publications in other languages than English, French text books are used for some of the more important studies in the course, and occasional translations and readings from the German periodicals are required.

Upon graduation the student receives the degree of Bachelor of Science; three years later, on proof of satisfactory advancement and on presentation of a thesis embodying original work or investigation, he receives the degree of Master of Science.

## THE CHEMICAL COURSE.

*For Freshman Year see page 32.*

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
<b>SOPHOMORE YEAR.</b>				
Analytical Geometry— <i>Course A 4 page 55, (1a)</i> .....	8	5.0		
French— <i>Courses B 4 and B 5, page 58</i> .....	16	5.0	20	5.0
German— <i>Courses B 8 and B 9, page 58</i> .....	16	5.0	20	5.0
Chemistry— <i>Course E 2, page 63, (I b)</i> .....	8	5.0	20	2.5
Laboratory Chemistry— <i>Course E 10, page 64</i> .....	16	†8.0	20	†10.
Laboratory Chemistry— <i>Course E 10, page 64, (II b)</i> ....			10	†4.0
Physics— <i>Courses F 1 and F 2, page 65</i> .....	16	3.0	20	4.0
Laboratory Physics— <i>Course F 3, page 65</i> .....	16	†4.0		
Laboratory Physics— <i>Course F 4, page 65, (II a)</i> .....			10	†4.0
Military Science— <i>Course N 2, page 82, (III a)</i> .....	13	†3.0		
Military Science— <i>Course N 3, page 82, (III b)</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (III c)</i> .....			13	†3.0
<b>JUNIOR YEAR.</b>				
German— <i>Course B 10, page 58</i> .....	16	2.5		
Psychology— <i>Course C 1, page 59, (IV a)</i> .....			10	5.0
Logic— <i>Course C 2, page 59, (IV b)</i> .....			10	5.0
English Literature— <i>Course C 3, page 59</i> .....	16	5.0		
Chemistry— <i>Course E 3, page 63</i> .....	16	2.5	20	2.5
Chemistry— <i>Course E 5, page 63</i> .....	16	1.0		
Laboratory Chemistry— <i>Course E 10, page 64</i> .....	16	†10.	20	†10.
Volumetric Analysis and Assaying— <i>Course E 10, page 64,</i> (b) Physics— <i>Course F 7, page 66</i> .....			20	†7.0
(a) Invertebrate Zoology— <i>Course G 5, page 67</i> .....	16	2.5	20	2.5
(b) Entomology— <i>Course G 9, page 68</i> .....			20	2.5
(a) Electricity and Magnetism— <i>Course M 1, page 79</i> .....	16	2.0		
Military Science— <i>Course N 2, page 82, (V a)</i> .....	13	†3.0	20	
Military Science— <i>Course N 3, page 82, (V b)</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (V c)</i> .....			13	3.0
<b>SENIOR YEAR.</b>				
Political Economy— <i>Course D 4, page 61</i> .....			20	5.0
Constitution— <i>Course D 6, page 61</i> .....	16	5.0		
Technical Chemical Processes— <i>Course E 6, page 63</i> .....	16	2.5		
Preparation of Organic Chemicals— <i>Course E 7, page</i> <i>63, (VI a)</i> .....			4	11.0
Photography— <i>Course E 8, page 63</i> .....	16	†2.0		
Mineralogy— <i>Course E 9, page 63</i> .....	16	†3.0		
Laboratory Chemistry— <i>Course E 10, page 64</i> .....	16	†12.		
Thesis— <i>Course E 11, page 65, (VI b)</i> .....			16	11.0
(a) Physics— <i>Course F 7, page 66</i> .....			20	2.5
Geology— <i>Course G 10, page 68</i> .....	16	2.5		
(a) Bacteriology— <i>Course H 13, page 71 (VII a)</i> .....			10	†5.0
(a) Histology— <i>Course I 7, page 72, (VII b)</i> .....			10	†5.0
Military Science— <i>Course N 2, page 82, (VIII a)</i> .....	13	†3.0		
Military Science— <i>Course N 4, page 82, (VIII b)</i> .....	3	1.5	7	1.5
Military Science— <i>Course 2, page 82, (VIII c)</i> .....			13	†3.0

## THE PHARMACY COURSE.

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The detailed statement of this course will be published in the next catalogue. The technical instruction will not begin till the fall term of 1895.

For the first year the Course in Pharmacy will be identical with all other courses. The work of the second year will be the same as that of the second year of the Course in Chemistry. In the third and fourth years will be taken those studies which fit the graduate to enter upon the business of practical pharmacy.

This course is one of only three courses of four years offered in the United States. It will afford unusual drill in the principles and practice of chemistry and pharmacy and at the same time give a liberal education. This course is in the charge of the professor of chemistry.

Upon graduation the student receives the degree of Bachelor of Science; one year later, on proof of professional work or further study, he may receive the degree of Graduate in Pharmacy, if he desire it; two years later on proof of satisfactory advancement and on presentation of a thesis embodying original work or investigation, he receives the degree of Master of Science.

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## THE PREPARATORY MEDICAL COURSE.

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The detailed statement of this course will be published in the next catalogue. For the first year it will be identical with all other courses. For the second year it will be identical with the chemical course. The later years will contain a larger amount of botany, bacteriology, and physiology.

Upon graduation the student receives the degree of Bachelor of Science; three years later, on proof of satisfactory advancement and on presentation of a thesis embodying original work or investigation, he receives the degree of Master of Science.



## THE AGRICULTURAL COURSE.

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The course in agriculture is especially designed for those who wish to follow some branch of agriculture as a business or who propose to become teachers or investigators along scientific lines related to agriculture. It is, however, so broadly educational, particularly in the natural sciences and their relations to human needs and activities, that it gives an admirable preliminary training for either business or professional life.

The instruction in this course is arranged with reference to two general results: first to secure for the student that intellectual development which is a condition fundamental to the highest success in any calling, and second, to impart such a knowledge of the farmer's social and physical environment as will tend to give him the largest influence as a man, and the greatest possible control of his business. While, therefore, the distinctive studies of this course are along technical lines, the branches pertaining to general culture, to social and civil relations, occupy an important place.

The sequence of studies in this course is such that the technical instruction is based upon a previously acquired knowledge of the science; for instance, general chemistry precedes agricultural chemistry and botany precedes horticulture.

The theoretical instruction, especially that of the last two years, is given mainly by lectures, but this is associated with practical work and observations in the field, laboratories, dairy, and forcing houses. Practice is combined with theory whenever it is necessary for the demonstration of a principle or involves skilled labor, but the student's time is not consumed in merely manual operations. Every effort is exerted to make the student conversant with the latest phases and discoveries of the rapidly broadening sciences, and with the best methods and processes in their application to the art of agriculture.

The special appliances for instruction are: chemical, botanical and biological laboratories, finely built and equipped forcing houses, a dairy building, gardens, a farm comprising three hundred and seventy acres of tillage, pasture, wood and timber land, well provided with modern farm buildings, tools, machinery, and stables stocked with horses, sheep, swine, and cattle.

The field and other experiments of the Experiment Station are also of the greatest value as an aid in converting in the mind of the student the theories of the lecture room into the working principles of practical life.

The agricultural departments, including Agriculture, Animal Industry, Horticulture and Veterinary Science, are under the general supervision of the professor of agriculture.

Upon graduation the student receives the degree of Bachelor of Science; three years later, on proof of satisfactory advancement and on presentation of a thesis embodying original work or investigation, he receives the degree of Master of Science.



## THE AGRICULTURAL COURSE.

*For the Freshman Year see page 23.*

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
<b>SOPHOMORE YEAR.</b>				
Analytical Geometry— <i>Course A 4, page 55, (I a)</i> .....	8	5.0		
(a) French— <i>Course B 4 and B 5, page 58</i> .....	16	5.0	20	5.0
(a) German— <i>Course B 8 and B 9, page 58</i> .....	16	5.0	20	5.0
Organic Chemistry— <i>Course E 4, page 63, (I b)</i> .....	8	5.0		
Laboratory Chemistry— <i>Course E 10, page 64</i> .....			20	†5.0
Physics— <i>Course F 1, page 65</i> .....				
Physics— <i>Course F 1 and F 2, page 65</i> .....	16	3.0	20	4.0
Laboratory Physics— <i>Course F 3, page 65</i> .....	16	†4.0		
Laboratory Physics— <i>Course F 4, page 65, (II a)</i> .....			10	†4.0
Mechanics— <i>Course F 5, page 66, (II b)</i> .....			10	2.0
Cryptogamic Botany— <i>Course G 1, page 66</i> .....	16	2.5		
Laboratory Botany— <i>Course G 2, page 67</i> .....	16	†2.0		
Histology— <i>Course I 7, page 72, (III a)</i> .....			10	†5.0
Bacteriology— <i>Course H 13, page 71, (III b)</i> .....			10	†5.0
Military Science— <i>Course N 2, page 82, (I a) (IV a)</i> .....	13	†3.0		
Military Science— <i>Course N 3, page 82, (I a) (IV b)</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (I c) (IV c)</i> .....			13	†3.0
<b>JUNIOR YEAR.</b>				
German— <i>Course B 10, page 58</i> .....	16	2.5		
Psychology— <i>Course C 1, page 59, (V a)</i> .....			10	5.0
Logic— <i>Course C 2, page 59, (V b)</i> .....			10	5.0
English History— <i>Course D 2, page 60</i> .....	16	2.5		
Laboratory Chemistry— <i>Course E 10, page 64</i> .....	16	†10.		
Invertebrate Zoology— <i>Course G 5, page 67</i> .....	16	2.5		
Laboratory Zoology— <i>Course G 6, page 67</i> .....	16	†5.0		
Entomology— <i>Course G 9, page 68</i> .....			20	2.5
Agricultural Chemistry— <i>Courses H 1 and H 2, page 69</i> ..	16	2.5	20	5.0
Agricultural Physics— <i>Course H 4, page 69, (VI a)</i> .....			10	2.5
Agricultural Engineering— <i>Course H 5, page 69, (VI b)</i> ..			10	2.5
Pomology— <i>Course I 1, page 71, (VII a)</i> .....			10	2.5
Olericulture— <i>Course I 2, page 71, (VII b)</i> .....			10	2.5
Laboratory Horticulture— <i>Course I 5, page 72</i> .....			20	†4.0
Military Science— <i>Course N 2, page 82, (VIII a)</i> .....	13	†3.0		
Military Science— <i>Course N 3, page 82, (VIII b)</i> ..	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (VIII c)</i> .....			13	†3.0

## THE AGRICULTURAL COURSE—CONCLUDED.

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
<b>SENIOR YEAR.</b>				
Political Economy— <i>Course D 4, page 61</i> .....			20	5.0
Constitution— <i>Course D 6, page 61</i> .....	16	5.0		
Advanced Physiology— <i>Course G 3, page 67</i> .....			20	2.5
Comparative Vertebrate Zoology— <i>Course G 7, page 68</i> ..	16	3.5		
Geology— <i>Course G 10, page 68</i> .....	16	2.5		
Agricultural Chemistry— <i>Course H 3, page 69</i> .....	8	2.5		
Stock Feeding— <i>Course H 6, page 69</i> .....	8	2.5		
Dairying— <i>Course H 7, page 70, (IX a)</i> .. . . .			6	5.0
Breeding of Animals— <i>Course H 8, page 70, (IX b)</i> .....			8	5.0
Poultry— <i>Course H 9, page 70, (IX c)</i> .....			6	5.0
Dairy Practice— <i>Course H 10 page 70</i> ....			20	†5.0
Veterinary Science— <i>Course H 11, page 70</i> .....			20	2.5
Veterinary Practice— <i>Course H 12, page 71</i> .....			20	†2.0
Plant Variation— <i>Course I 3, page 71, (X a)</i> .....	8	2.5		
Landscape Gardening— <i>Course I 4, page 71, (X b)</i> .....	8	2.5		
Laboratory Horticulture— <i>Course I 5, page 72</i> ....	16	†5.0		
Military Science— <i>Course N 2, page 82 (XI a)</i> .....	13	†3.0		
Military Science— <i>Course N 4, page 82, (XI b)</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (XI c)</i> .....			13	†3.0





WINGATE HALL.

## THE CIVIL ENGINEERING COURSE.

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The object of this course is to give the student a thorough knowledge of higher mathematics, mechanics and drawing, experience in the care and use of the ordinary engineering instruments, and a thorough drill in the application of mathematical principles and rules, with a view to fitting the student at graduation to apply himself at once to engineering work, and to qualify him, after experience in the field, to fill positions of importance and trust. The course is planned to furnish with technical instruction the basis of a liberal education. Especial attention is given to English, modern languages and economics.

The method of instruction includes recitations from text-books, lectures, original problems, work in the testing laboratories field practice, and work in the designing room where original designs are figured and the necessary drawings prepared. In the last year of the course special effort is made to acquaint the student with the best engineering structures and the standard works in engineering literature.

The facilities for instruction are excellent. The engineering building which has been recently erected is heated and thoroughly ventilated by means of the Sturtevant blower system, and contains recitation rooms, designing rooms, testing laboratories, drawing rooms, and instrument rooms as good as any to be found in the country. These rooms are all thoroughly equipped. Beside the instruments ordinarily used by the professional engineer, the department has a fine plane table, a solar compass a testing machine for iron, a testing machine for cement, and various pieces of apparatus for standard measurements.

Upon graduation the student receives the degree of Bachelor of Civil Engineering; three years later, on proof of satisfactory advancement and on presentation of a thesis embodying original work or investigation, he receives the degree of Civil Engineer.

## THE CIVIL ENGINEERING COURSE.

For the Freshman Year see page 23.

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
<b>SOPHOMORE YEAR.</b>				
Analytical Geometry— <i>Courses A 4 and A 5, page 55.</i> ....	16	5.0		
Descriptive Geometry— <i>Course A 6, page 56.</i> ...			20	4.0
Calculus— <i>Course A 7, page 56.</i> .....			20	2.5
(a) French— <i>Courses B 6 and B 7, page 58.</i> .....	16	2.5	20	2.5
(a) German— <i>Courses B 10 and B 11, page 58.</i> .....	16	2.5	20	2.5
English History— <i>Course D 2, page 60.</i> .....	16	2.5		
Physics— <i>Courses F 1 and F 2, page 65.</i> .....	16	3.0	20	4.0
Laboratory Physics— <i>Course F 3, page 65.</i> .....	16	4.0		
Laboratory Physics— <i>Course F 4, page 65 (1a).</i> .....			10	4.0
Drawing— <i>Course K 1, page 73.</i> .....	16	7.0		
Surveying— <i>Course K 2, page 73.</i> .....			20	2.5
Field Work in Surveying— <i>Course K 3, page 73 (1a).</i> .....			10	2.0
Field Work in Surveying— <i>Course K 3, page 73 (1b).</i> .....			10	6.0
Military Science— <i>Course N 2, page 82 (11a).</i> .....	13	3.0		
Military Science— <i>Course N 3, page 82 (11b).</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82 (11c).</i> .....			13	3.0
<b>JUNIOR YEAR.</b>				
Calculus— <i>Course A 8, page 56.</i> .....	16	5.0		
Psychology— <i>Course C 1, page 59 (IIIa).</i> .....			10	5.0
Logic— <i>Course C 2, page 59 (IIIb).</i> .....			10	5.0
Railroad Engineering— <i>Course K 4, page 73 (IVa).</i> .....	12	3.5		
Railroad, Field and Office Work— <i>Course K 5, page 73.</i> ...	16	10.0		
Highway Engineering— <i>Course K 6, page 74 (IVb).</i> .....	4	3.5		
Mechanics— <i>Course K 7, page 74 (Va).</i> .....	16	5.0	12	5.0
Graphics— <i>Course K 8, page 74 (Vb).</i> .....			8	5.0
General Drawing— <i>Course K 9, page 74 (VIa).</i> .....			12	6.0
(b) General Drawing— <i>Course K 9, page 74.</i> .....			12	4.0
Stereotomy— <i>Course K 10, page 74 (VIIa).</i> .....			10	7.0
Sanitary Engineering— <i>Course K 11, page 74 (VIIb).</i> ....			10	3.5
Higher Surveying— <i>Course K 12, page 75 (VIb).</i> .....			8	10.0
(b) Laboratory Electricity— <i>Course M 4, page 80.</i> .....			12	4.0
Military Science— <i>Course N 2, page 82 (VIIIa).</i> .....	13	3.0		
Military Science— <i>Course N 3, page 82 (VIIIb).</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82 (VIIIc).</i> .....			13	3.0
<b>SENIOR YEAR.</b>				
Descriptive Astronomy— <i>Course A 9, page 56.</i> .....			20	2.5
Practical Astronomy— <i>Course A 10, page 56.</i> .....			20	3.0
Political Economy— <i>Course D 4, page 61.</i> .....			20	5.0
Constitutional Law— <i>Course D 6, page 61.</i> .....	16	5.0		
Photography— <i>Course E 8, page 63.</i> .....	16	2.0		
Mineralogy— <i>Course E 9, page 63.</i> .....	16	3.0		
Geology— <i>Course G 10, page 63.</i> .....	16	2.5		
Mechanics of Materials— <i>Course K 13, page 75 (IXb).</i> ....	9	5.0		

## THE CIVIL ENGINEERING COURSE—CONCLUDED.

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
SENIOR YEAR—Continued.				
Foundations, Masonry Construction and Cements— <i>Course K 14, page 75</i> .....			20	3.5
Hydraulics— <i>Course K 15, page 75 (IXa)</i> .....	7	5.0		
Hydraulics (Field Work)— <i>Course K 15, page 75 (Xa)</i> ....	8	†7.0		
Designing and Thesis Work— <i>Course K 16, page 76 (X b)</i>	8	†7.0	20	†12.
Military Science— <i>Course N 2, page 82 (XIa)</i> .....	13	†3.0		
Military Science— <i>Course N 4, page 82 (XI b)</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82 (XIc)</i> .....			13	†3.0



## THE MECHANICAL ENGINEERING COURSE.

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This course is designed to give such a training in mathematics, mechanics, the principles of mechanism, drawing and manual arts as shall make the student competent to deal successfully with the problems of mechanical engineering. To give breadth, the course includes instruction in the natural sciences, English, the modern languages, philosophy and history. The technical courses are planned to furnish a sound basis for a professional career. These include the geometry of machinery, gearing, with problems and practice, transmission of motion and power, bolts, cams, couplings and links, the study and designing of valve and link motions used in the steam engine, analytical mechanics, strength of materials, expansion of steam, construction of steam engines, the designing of steam boilers, and hydraulics. The methods of instruction include lectures, recitations, practice in shop-work, filing, moulding and forging, the solution of numerous problems, the tests of theoretical results by comparison with modern machinery, inspection of important plants, etc.

The department shares the engineering building with the department of civil engineering. The machinery building is equipped with iron working and wood working machinery of the most approved form.

Upon graduation the student receives the degree of Bachelor of Mechanical Engineering; three years later, on proof of satisfactory advancement and on presentation of a thesis embodying original work or investigation, he receives the degree of Mechanical Engineer.

## THE MECHANICAL ENGINEERING COURSE.

*For Freshman Year see page 32.*

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
<b>SOPHOMORE YEAR.</b>				
Analytical Geometry— <i>Courses A 4 and A 5, page 55.</i> .....	16	5.0		
Descriptive Geometry— <i>Course A 6, page 56</i> .....			20	4.0
Calculus— <i>Course A 7, page 56.</i> .....			20	2.5
(a) French— <i>Courses B 6 and B 7, page 58.</i> .....	16	2.5	20	2.5
(a) German— <i>ourses B 10 and B 11, page 58</i> .....	16	2.5	20	2.5
English History— <i>Course D 2, page 60.</i> .....	16	2.5		
Physics— <i>Courses F 1 and F 2, page 65.</i> .....	16	3.0	20	4.0
Laboratory Physics— <i>Course F 3, page 65.</i> .....	16	†4.0		
Laboratory Physics— <i>Course F 4, page 65, (I a)</i> .....			10	†4.0
Carpentry— <i>Course L 2, page 76.</i> .....	16	†6.0		
Forge Work— <i>Course L 3, page 77.</i> .....			20	†8.0
Machine Work— <i>Course L 7, page 78, (I b).</i> .....			10	†3.0
Military Science— <i>Course N 2, page 82, (II a).</i> .....	13	†3.0		
Military Science— <i>Course N 3, page 82, (II b).</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (II c).</i> .....			13	†3.0
<b>JUNIOR YEAR.</b>				
Calculus— <i>Course A 8, page 56.</i> .....	16	5.0		
Machine Design— <i>Course L 1, page 76.</i> .....			20	3.5
Mechanics— <i>Course L 4, page 77.</i> .....	16	5.0	20	5.0
Kinematics— <i>Course L 5, page 77.</i> .....	16	†5.0		
Machine Work— <i>Course L 7, page 78.</i> .....	16	†4.0	20	†6.0
(b) Machine Work— <i>Course L 7, page 78.</i> .....	16	†4.0	20	†4.0
Steam Boilers— <i>Course L 10, page 79.</i> .....			20	5.0
Electricity and Magnetism— <i>Course M 1, page 79.</i> .....	16	2.0		
(b) Laboratory Electricity— <i>Courses M 3 and M 4, page 80.</i> .....	16	†4.0	20	†4.0
Military Science— <i>Course N 2, page 82, (III a)</i> .....	13	†3.0		
Military Science— <i>Course N 3, page 82, (III b).</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (III c).</i> .....			13	†3.0
<b>SENIOR YEAR.</b>				
Psychology— <i>Course C 1, page 59, (IV a).</i> .....			10	5.0
Logic— <i>Course C 2, page 59, (IV b).</i> .....			10	5.0
Political Economy— <i>Course D 4, page 61</i> .....			20	5.0
Constitution— <i>Course D 6, page 61.</i> .....	16	5.0		
Geology— <i>Course G 10, page 68</i> .....	16	2.5		
Link and Valve Motions— <i>Course L 6, page 77.</i> .....	16	4.0		
Steam Engine— <i>Course L 8, page 78, (V a).</i> .....	16	2.0	10	2.0
Hydro-Mechanics— <i>Course L 9, page 78.</i> .....			20	1.5
Testing— <i>Course L 11, page 79, (V b).</i> .....			10	2.0
Steam Engine Designing— <i>Course L 12, page 79.</i> .....	16	†10.		
Steam Boiler Designing— <i>Course L 13, page 79.</i> .....			10	†10.
Thesis Work— <i>Course L 14, page 79.</i> .....			10	†10.
Military Science— <i>Course N 2, page 82, (VI a).</i> .....	13	†3.0		
Military Science— <i>Course N 4, page 82, (VI b).</i> .....	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (VI c).</i> .....			13	†3.0

## THE ELECTRICAL ENGINEERING COURSE.

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The Course in Electrical Engineering is identical with the Course in Mechanical Engineering for the first two years. During the last two years the student devotes his time about equally to the two lines of work. He is thus able to get a fair knowledge of steam engineering, boiler management, mechanics and kindred subjects, and at the same time to become familiar with the various branches of electrical engineering. This work consists of lectures, text-book and laboratory work. The subjects considered cover the problems which confront an electrician in practical life. This course is in the charge of the professor of physics.

At present the department occupies three rooms, in addition to those belonging to the department of physics. These rooms are the laboratory, fitted with solid tables, where the general work in measurement and testing is done; the dynamo room, containing a dynamo and switch board; and a room for use as a private laboratory for work with the more delicate instruments. It is expected that immediate provision will be made for increasing the efficiency of the work in this department, by the purchase of additional instruments. When the equipment is completed, it is believed that the course will furnish an admirable preparation for work in designing, constructing and managing the various instruments and machines which are to be found in an electric plant.

Upon graduation the student receives the degree of Bachelor of Mechanical Engineering; three years later, on proof of satisfactory advancement and on presentation of a thesis embodying original work or investigation, he receives the degree of Mechanical Engineer or Electrical Engineer, as his professional work may make proper.

## THE ELECTRICAL ENGINEERING COURSE.

*For the Freshman Year see page 32.*

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
<b>SOPHOMORE YEAR.</b>				
Analytical Geometry— <i>Courses A 4, and A 5, page 55....</i>	16	5.0		
Descriptive Geometry— <i>Course A 6, page 56 .....</i>			20	4.0
Calculus— <i>Course A 7, page 56.....</i>			20	2.5
(a) French— <i>Courses B 6 and B 7, page 58.....</i>	16	2.5	20	2.5
(a) German— <i>Courses B 10 and B 11, page 58....</i>	16	2.5	20	2.5
English History— <i>Course D 2, page 60 .....</i>	16	2.5		
Physics— <i>Courses F 1 and F 2, page 65.....</i>	16	3.0	20	4.0
Laboratory Physics— <i>Course F 3, page 65.....</i>	16	†4.6		
Laboratory Physics— <i>Course F 4, page 65.....</i>			10	†4.0
Carpentry— <i>Course L 2, page 76.....</i>	16	†6.0		
Forge Work— <i>Course L 3, page 77.....</i>			20	†8.0
Military Science— <i>Course N 2, page 82, (I a).....</i>	13	†3.0		
Military Science— <i>Course N 3, page 82, (I b) .....</i>	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (I c).....</i>			13	†3.0
<b>JUNIOR YEAR.</b>				
Calculus— <i>Course A 8, page 56.....</i>	16	5.0		
Machine Design— <i>Course L 1, page 76.....</i>			20	3.5
Mechanics— <i>Course L 4, page 77.....</i>	16	5.0	20	5.0
Kinematics— <i>Course L 5, page 77.....</i>	16	†3.0		
Machine Work— <i>Course L 7, page 78.....</i>	16	†6.0	20	†6.0
Steam Boilers— <i>Course L 10, page 79 .....</i>			20	2.0
Electricity and Magnetism— <i>Course M 1, page 79.....</i>	16	2.0		
Electricity and Magnetism— <i>Course M 2, page 80.....</i>			20	3.0
Laboratory Electricity— <i>Courses M 3 and M 4, page 80..</i>	16	†4.0	20	†4.0
Military Science— <i>Course N 2, page 82, (II a).....</i>	13	†3.0		
Military Science— <i>Course N 3, page 82, (II b) .....</i>	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (II c).....</i>			13	†3.0
<b>SENIOR YEAR.</b>				
Psychology— <i>Course C 1, page 59, (III a) .....</i>			10	5.0
Logic— <i>Course C 2, page 59, (III b) .....</i>			10	5.0
Political Economy— <i>Course D 4, page 61 .....</i>			20	5.0
Constitution— <i>Course D 6, page 61.....</i>	16	5.0		
Geology— <i>Course G 10, page 68.....</i>	16	2.5		
Link and Valve— <i>Course L 6, page 77.....</i>	16	2.0		
Steam Engine— <i>Course L 8, page 78.....</i>	16	2.0		
Electrical Machinery— <i>Course M 5, page 80.....</i>	16	2.0		
Electrical Engineering— <i>Course M 6, page 80.....</i>			20	2.0
Electrical Design— <i>Courses M 7 and M 8, pages 80 and 81.</i>	16	†6.0	20	†5.0
Laboratory Electricity— <i>Course M 9, page 81.....</i>	16	†4.0		
Laboratory Electricity and Thesis Work— <i>Course M 10, page 81.....</i>			20	†6.0
Theoretical Electricity— <i>Course M 11, page 81.....</i>			20	1.0
Military Science— <i>Course N 2, page 82, (IV a).....</i>	13	†3.0		
Military Science— <i>Course N 4, page 82, (IV b).....</i>	3	1.5	7	1.5
Military Science— <i>Course N 2, page 82, (IV c).....</i>			13	†3.0

## THE SHORT COURSES.

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### THE SHORT COURSE IN PHARMACY.

This course is designed for those who wish to obtain a practical training in pharmacy, in the shortest time. The year is thirty-six weeks in length and the student is expected to give his entire time to his college work. The work will be like that of the third and fourth years of the long course except that the most advanced technical work and the studies introduced for the sake of culture will be replaced by elementary scientific studies. Persons desiring to enter this course should have a good English education, such as can be gained in a good public grammar school. Formal entrance examinations are not required, but each candidate must satisfy the professor in charge that he is fitted to pursue the course with profit.

The annual expenses are the same as those of students in the long course as stated in the article on expenses. No charge is made for tuition or rooms. The work in pharmacy is in the charge of the professor of chemistry.

Students who complete this course in a satisfactory manner receive a certificate. Three years later, on presentation of a satisfactory thesis and proof of professional work, or further study, they receive the degree of Graduate in Pharmacy.

A special circular, in regard to this course, will be issued in May, 1895. Those who wish it should apply to the President of the College.

### THE COURSE IN LIBRARY ECONOMY.

This course is designed to give training for the profession of the librarian, and to furnish to persons fond of books opportunity to become familiar with them and their history. It is not a part of any of the other courses, but is expected to occupy the time

of the student for one year. The student may, however, obtain the consent of the faculty to attend other courses of instruction in the college. The course is thoroughly practical, and it is expected that those who complete it will be fitted to take charge of small libraries, or departments in larger libraries.

Candidates for admission should have a high school training, in which it will be well to give especial attention to the languages. Those coming from approved schools will be admitted on certificate. Others will be examined on literature, history, and miscellaneous information such as should be acquired from general reading.

The general expenses are the same as those of students in the long courses, as stated in the article on expenses. No charge is made for tuition or rooms, but each student pays for materials used. This charge should not exceed \$5.00 per annum.

Students who complete this course in a satisfactory manner receive a certificate.

The following outline of studies may be varied, with the permission of the faculty, to suit individual cases.

One hour a day through the year is devoted to recitation in literature. English and American literature are taken up in the fall term and modern European literature in the spring term. Two hours on alternate afternoons are devoted to supplementary reading in the library. The study of classification occupies the other afternoons of the year except for a part of the spring term which is given to bibliography. Three hours each day are devoted to cataloguing and general library economy, including accessioning, shelf-listing, charging of books, assigning of book numbers, etc. The exact portion of time to be devoted to each subject is arranged to fit the needs of the individual student.

#### THE TWO YEARS COURSE IN ELECTRICAL ENGINEERING.

This course is designed for those students who wish to obtain only a practical training in electrical engineering. It omits most of the subjects of a general and theoretical nature which appear in the four years course.

To enter upon this course the student must give evidence of sufficient knowledge of mathematics to carry on the mathematical



studies pursued by the freshman class. Preparation in English studies is highly desirable. The annual expenses are the same as those for other courses, for which see the article on expenses.

By permission of the Faculty changes may be made in the outline, by which the student may devote a certain amount of time to modern languages, English, laboratory work in physics, chemistry and natural history, or to other subjects.

Upon completing, in a satisfactory manner, the course here outlined, a certificate will be given to the student indicating the amount and character of the work performed.



## SHORT COURSE IN ELECTRICAL ENGINEERING.

Studies.	Fall Term.		Spring Term.	
	Weeks.	Hours.	Weeks.	Hours.
<b>FIRST YEAR.</b>				
Geometry—Course A 1, page 55 .....	8	5.0		
Algebra—Course A 2, page 55.....	8	5.0	8	5.0
Trigonometry—Course A 3, page 55.....			12	5.0
Chemistry—Course E 1, page 62.....	16	2.5	20	2.5
Physics—Course F 1, page 65.....	16	3.0		
Physics—Course F 2, page 65.....			20	4.0
Drawing—Course J 1, page 72.....	16	†5.0		
Mathematical Drawing—Course J 3, page 72, (I b).....	3	†3.0	7	†3.0
Shop Work—Course L 2, page 76.....	16	†6.0	20	†8.0
Kinematics—Course L 5, page 77.....	16	†3.0		
Electricity and Magnetism—Course M 1, page 79.....	16	†2.0		
Laboratory Electricity—Course M 3, page 80.....	16	†4.0		
Laboratory Electricity—Course M 4, page 80.....			20	†4.0
Military Science—Course N 1, page 81.....	16	†2.0	20	2.0
Military Science—Course N 2, page 82, (I a).....	13	†3.0		
Military Science—Course N 2, page 82, (I c).....			13	†3.0
<b>SECOND YEAR.</b>				
Link and Valve—Course L 6, page 77.....	16	2.0		
Steam Engine—Course L 8, page 78.....	16	2.0	16	2.0
Hydro-Mechanics—Course L 9, page 78.....			20	1.5
Steam Boilers—Course L 10, page 79.....			20	2.0
Electrical Machinery—Course M 5, page 80.....	16	2.0		
Electrical Engineering—Course M 6, page 80.....			20	2.0
Electrical Design—Course M 7, page 80.....	16	†6.0		
Electrical Design—Course M 8, page 81.....			20	†5.0
Laboratory Electricity—Course M 9, page 81.....	16	†4.0		
Laboratory Electricity—Course M 10, page 81 .....			20	†6.0
Military Science—Course N 2, page 82, (I a).....	13	†3.0		
Military Science—Course N 3, page 82, (I b).....	3	1.5	7	1.5
Military Science—Course N 2, page 82, (I c).....			13	†3.0

## THE SHORT COURSES IN AGRICULTURE.

The short courses in agriculture are designed for those who wish to become farmers and can devote but limited time to study. They are intended to give the greatest amount of available and directly useful knowledge that can be acquired in the time allowed. To adapt them to the varying conditions of preparation and of time that can be given, two courses are offered, one extending through two college years, the other through one year. The former affords a wider range of study and practice, but the latter in its narrower range offers a plan of systematic study on prominent and important agricultural subjects. Students must come to these courses with at least a good common school education, and be not less than fifteen years of age. No maximum limit of age is fixed. Formal entrance examinations are not required, but the College reserves the right to reject any student who shows a lack of fitness to pursue with success the course selected.

The annual expenses are the same as those of students in the four years courses, as stated in the article on expenses. No charge is made for tuition or rooms.

These courses, including the work in agriculture, horticulture, animal industry and veterinary science, are in the general charge of the professor of agriculture.

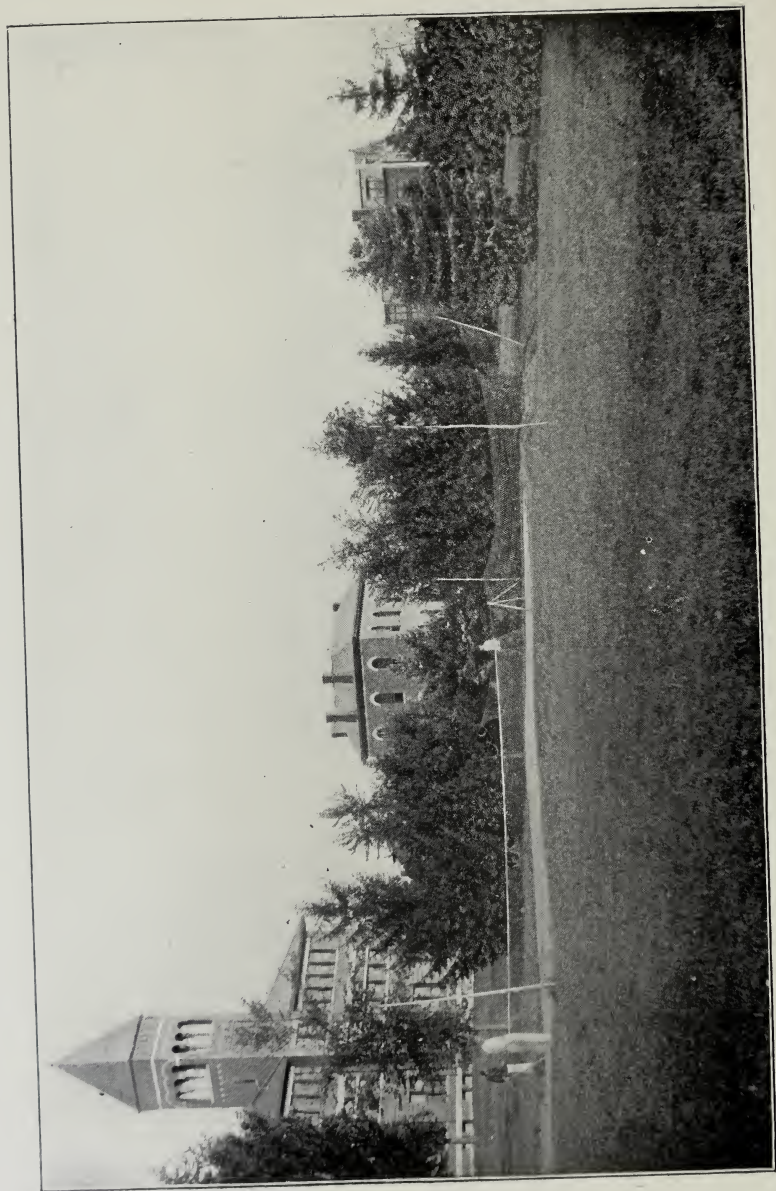
Students who complete these courses in a satisfactory manner, receive certificates.

## SPECIAL COURSES.

No short courses have been arranged in other departments than those mentioned above, but special students are received in any department upon satisfying the professor in charge that they are fitted to pursue a special course with profit. The studies must usually be selected from those announced in the catalogue. If more students desire to take any study than can be accommodated, preference will be given to those in the regular and longer courses.

The expenses will be the same as those of students in the full courses. No charge will be made for tuition or rooms.





A TENNIS COURT.

## DEPARTMENTS OF INSTRUCTION.

## A--MATHEMATICS AND ASTRONOMY.

PRESIDENT HARRIS; PROFESSOR HART\*; PROFESSOR HERSEY;  
MR. COWAN.

A 1. SOLID GEOMETRY.—Books 6, 7, 8, of Wentworth's Solid Geometry, except the theorems relating to symmetrical figures and regular polyhedrons, and including applications to the mensuration of solids and original demonstrations.

*Five hours a week for eight weeks.* MR. COWAN.

A 2. ALGEBRA.—Theory of quadratic equations; binomial theorem with fractional and negative exponents; variations; inequalities; logarithms, including the solution of arithmetical problems and application to problems in compound interest and insurance; exponential and logarithmic series and computation of logarithms; indeterminate coefficients; partial fractions.

The text-book is Wells' College Algebra. *Five hours a week for sixteen weeks.* PROF. HERSEY.

A 3. TRIGONOMETRY.—Plane trigonometry. Proof of formulas and solutions of right and oblique triangles both by numerical values of the functions and by logarithms. Spherical trigonometry. Proof of formulas, and logarithmic solution of right and oblique triangles.

The text-book is Wentworth's Trigonometry. *Five hours a week for twelve weeks.* PROF. HERSEY.

A 4. ANALYTICAL GEOMETRY.—An elementary course, including the study of the point, right line, circle, ellipse, parabola and hyperbola referred to rectangular axes.

The text-book is Nichols' Analytic Geometry. *Five hours a week for eight weeks.* PRESIDENT HARRIS.

A 5. ANALYTICAL GEOMETRY.—An advanced course.

The text-book is Nichols' Analytic Geometry. *Five hours a week for eight weeks.* PRESIDENT HARRIS.

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\* On leave.

A 6. DESCRIPTIVE GEOMETRY.—The time of this course is divided equally between the recitation room and the drawing-room. The work in the drawing-room consists of thirty-six independent problems, of which sixteen are elementary, twelve are tangent problems, and eight are problems in working out the curves of intersection of planes, cylinders, cones, spheres, etc.

The text-book is Church's Descriptive Geometry. *Five exercises (counting as four hours) a fortnight for twenty weeks.* MR. WEBB.

A 7. CALCULUS.—Differentiation of algebraic, trigonometric, anti-trigonometric, exponential, and logarithmic functions; formulas derived by method of limits; successive differentiation; development of functions; indeterminate forms.

The text-book is Osborne's Integral and Differential Calculus. *Five hours a fortnight for twenty weeks.* PRESIDENT HARRIS.

A 8. CALCULUS.—The application of differentiation to the study of plane curves; maxima and minima. Integration by fundamental formulæ; integration of rational fractions; integration by rationalization; integration regarded as a summation; integration by parts; reduction formulæ; applications to finding the length of curves, areas of plane surfaces and surfaces of revolution, volumes of solids, center of gravity, moment of inertia and to problems in mechanics.

The text-book is Osborne's Differential and Integral Calculus. *Five hours a week for sixteen weeks.* PRESIDENT HARRIS.

A 9. DESCRIPTIVE ASTRONOMY.—The text-book is supplemented by informal lectures, an elaborate set of drawings of celestial objects, lantern slides, and telescopic work, for which a 4-inch Clark equatorial telescope is available.

The text-book is Young's Elements of Astronomy. *Five hours a fortnight for twenty weeks.* PROF. HART.

A 10. PRACTICAL ASTRONOMY.—A course embracing the theory and use of the sextant and artificial horizon, the theodolite, chronometer, and the altitude and azimuth instrument; solution of various problems relating to the astronomical triangle; conversion of time; latitude by a meridian altitude, by an altitude at any time, by circum-meridian altitudes; time by star



transits, and by equal altitudes of a star or the sun; longitude by a single altitude, by moon culminations, by telegraph; azimuth by a circum-polar star at elongation, by an altitude of a star or the sun. Other topics treated vary from year to year. The instrumental equipment consists of two sextants and artificial horizons, a theodolite by Buff & Berger, made with reference to astronomical work, a sidereal and a mean time chronometer, and a vertical circle with 1.8-inch objective, made by A. Repsold & Son.

† *Three hours a fortnight for twenty weeks.* PROF. HART.

## B—RHETORIC AND MODERN LANGUAGES.

PROFESSOR ESTABROOKE.

B 1. RHETORIC.—The classification of sentences—rhetorical, grammatical; analysis of the sentence with reference to punctuation; exercises in punctuation; diction, with special reference to purity, propriety, and precision of language; clearness, strength, and unity of sentences; extended study of the paragraph; themes—including the narrowing of the subject from general to particulars; construction of outline, etc.

The text-book is Mead's Rhetoric. *Five hours a fortnight for thirty-six weeks.*

B 2. ANGLO-SAXON.—Elements of Anglo-Saxon grammar; reading of easy prose, such as the Gospel of St. John, selections from Aelfric's Homilies, the Voyages of Wulfstan and Othere, selections from the Anglo-Saxon Chronicle. Constant reference is made to the relation of Anglo-Saxon to modern English.

The text-books are Cook's Grammar and Corson's Handbook of Anglo-Saxon and Early English. *Five hours a fortnight for twenty weeks.*

B 3. LIBRARY WORK.—Work in the history of the origin and development of the English language. Lounsbury's History of the English Language will be taken as the nucleus of that work, and while reading this the student will also read, in whole or in part, Marsh's Lectures on the English Language, Whitney's Life and Growth of Language, Farrar's Language and Lang-



uages, Earl's Philology of the English Tongue, Matthews' Words, their Use and Abuse, Wheeler's Byeways of Literature, the works of Muller, White, Latham, and others.

*Ten hours a fortnight during the fall term and four hours a week during the spring term of the junior year; and ten hours a fortnight during the senior year.*

B 4. FRENCH.—Elements of French grammar and reading of selections from easy prose.

The text-books are Edgren's French Grammar and Super's Reader. *Five hours a week for sixteen weeks.*

B 5. FRENCH.—Reading of easy prose and verse, with constant reference to grammatical construction.

The text-books are Molière's L'Avare and Histoire de la Mère Michel et de Son Chat. *Five hours a week for twenty weeks.*

B 6. FRENCH.—Reading of more difficult prose such as is found in the popular novels and plays; reading of French history.

The text-books are Mademoiselle de la Seiglière, Vie de Napoléon, Tableaux de la Revolution Française, Super's Readings from French History, Les Trois Mousquetaires. *Five hours a fortnight for sixteen weeks.*

B 7. FRENCH.—A continuation of course 6.

*Five hours a fortnight for twenty weeks.*

B 8. GERMAN.—Elements of German grammar and reading of selections of easy prose and verse.

The text-books are Harris's German Lessons and Van Dæll's Reader. *Five hours a week for sixteen weeks.*

B 9. GERMAN.—This course is a continuation of course 7.

The text-books are Van 'Dæll's Reader, Meissner's German Grammar, and Storm's Immensee, Der Neffe als Onkel. *Five hours a week for twenty weeks.*

B. 10. ADVANCED GERMAN.—Reading of moderately difficult poetry. The text-book is Schiller's Ballads.

*Five hours a fortnight for sixteen weeks.*

B. 11. ADVANCED GERMAN.—The text-books are Wilhelm Tell and Gore's Science Reader.

*Five hours a fortnight for twenty weeks.*

B. 12. SPANISH.—The object of this course is the acquisition of the ability to read easy Spanish with facility. A brief study in Spanish literature is included. Students must have pursued previously the full courses in French. This course alternates with Italian beginning in 1896.

The text-books are : Ollendorff's Method and Don Quixote.

*Five hours a fortnight for twenty weeks.* PROF. ROGERS.

B. 13. ITALIAN.—The object of this course is the acquisition of the ability to read easy Italian with facility. A brief study of Italian literature is included. Students must have pursued previously the courses in French. This course alternates with Spanish beginning in 1897.

The text-books are Grandgent's Italian Grammar and Pellico's "Le Mie Pregione."

*Five hours a fortnight for twenty weeks.* PROF. ROGERS.

## C—LOGIC AND ENGLISH LITERATURE.

PROFESSOR ROGERS.

C 1. PSYCHOLOGY.—Psychology is taken up as a preliminary to logic. In the brief time allotted to this subject only its outlines can be considered.

*Five hours a week for ten weeks.*

C 2. LOGIC.—The object of this course, is to give the student a just appreciation of the functions of language as a means of expressing thought, and familiarity with the principles of deductive and inductive reasoning. The student is given frequent drill in the application of logical principles with the idea that not only should these principles be comprehended but that they should be so digested and assimilated as to make them a part of his intellectual fibre.

The instruction is given mainly by lectures. *Five hours a week for ten weeks.*

C 3. ENGLISH LITERATURE.—Arnold's Manual of English Literature serves as a guide for the work done, which consists of a careful study of some of the masterpieces of our language and of the historical and other conditions under which they

were produced. The library is used in connection with these lectures and recitations as the laboratory is used in the study of the experimental sciences.

*Five hours a week for sixteen weeks.*

C 4. LITERATURE OF MODERN EUROPE.—This course is designed to give an outline of the best literature of the principal European nations, since the “revival of learning.” The prominent authors of each nation are studied, being taken up chronologically instead of by nationalities, so as to bring out the mutual relations of the different literatures. The class-room work is supplemented by work in the library. No text-book is used.

*Five hours a week for twenty weeks.* MISS FERNALD.

C 5. LIBRARY WORK.—The aim of this course is to familiarize the student with not only general literature but also the literature of history and economics and to make critical and independent investigation of questions arising in connection with these subjects. This work is tested from time to time, and the student is held strictly responsible for it.

*Ten hours a fortnight during the fall term and four hours a week during the spring term of the junior year; and ten hours a fortnight during the senior year.*

## D—CIVICS.

PROFESSOR ROGERS.

D 1. GENERAL HISTORY.—The text-book is Myer's General History. *One hour a week for sixteen weeks and three hours a week for twenty weeks.*

D 2. ENGLISH HISTORY.—The text-book is Green's Shorter History of the English People. *Five hour a fortnight for sixteen weeks.*

D 3. AMERICAN HISTORY.—Lectures, supplemented by topical investigation and study. *Two hours a week for twenty weeks.*

D 4. POLITICAL ECONOMY.—Instruction is given by lectures. Topical readings and investigation are required. Recognizing that the basis of economics is in the advancing civilization and changing conditions of the people, that its objective point is not ultimate principles, but the most advantageous adaptation of present means to these conditions, the aim of the instruction given is not to supply the student with references ready made, but to teach him to think for himself. With the habit of logical and systematic thought upon these subjects once acquired, the best sources for information upon economic matters are not the text-books of ten, fifteen, or fifty years ago, but the daily newspaper; for it is in comprehending the questions of public policy of the present day that the study of political economy does its work in making men better fitted for the responsible duties of citizenship.

*Five hours a week for twenty weeks.*

D 5. MUNICIPAL LAW.—Lectures, setting forth the general principles of law. Among the topics discussed are the general principles of contracts, sales, notes and bills, conveyancing, agency, bailments, and insurance. These subjects are considered very briefly and generally; but it is believed that the instruction given, in addition to its educational value, will be useful in preventing vexatious and expensive litigation.

*One hour a week for thirty-four weeks.*

D 6. CONSTITUTIONAL LAW AND HISTORY.—Instruction is given mainly by lectures on which the student is required to make copious notes and to take weekly examinations. The course includes an outline of Anglo-Saxon institutions, the development of the English Constitution until modern times, the growth and political conditions of the American colonies prior to their independence, the Articles of Confederation, the causes leading to the adoption of the Constitution; the comparative study of the Federal and the State Constitutions, clause by clause, from historical and legal standpoints. The political history of the United States is discussed as fully as time permits. Many of the principles of international law are discussed in connection with this subject.

*Five hours a week for sixteen weeks.*

D 7. INTERNATIONAL LAW.—A complete course.

The text-book is Wolsey's International Law. *Four hours a week for twenty weeks.*

D 8. THE PHILOSOPHY OF HISTORY.—The literature, learning, political and economic conditions of the great historic nations are discussed, and the growth of the institutions carefully considered. Fisher's Outlines of General History serves as a basis for the work done, and is supplemented by lectures and topical studies.

*Five hours a fortnight for sixteen weeks.*

D 9. HISTORY OF PHILOSOPHY.—Schwegler's History of Philosophy is used as a text-book.

*Five hours a fortnight for sixteen weeks.*

D 10. ANTHROPOLOGY.—This course is limited to the study of primitive institutions and customs, but it is hoped that it may be more fully developed, and the opportunities for research afforded by the relics of the aboriginal races of this section of the country may be utilized.

The text book is Lubbock's Origin of Civilization and Primitive Condition of Man.

*Two hours a week for twenty weeks.*

## E—CHEMISTRY.

PROFESSOR AUBERT; MR. COLBY.

E 1. GENERAL CHEMISTRY. Recitations and lectures in the general principles of chemistry, illustrated by charts, experiments, etc. This course is designed to give the student a general survey of the theories of chemistry, preparation and properties of the most important elements and their compounds, and of some of the important chemical industries. It serves as a basis for the other courses. The text-book is Fischer's Lessons in Elementary Chemistry. *Five hours a fortnight for thirty-six weeks.* PROF. AUBERT.

E 2. CHEMICAL THEORY AND ADVANCED INORGANIC CHEMISTRY. The text books are Walker and Dobson's Chemical Theory and Serres Principes de Chemie, Vols. 1 and 2. *Five hours a week for eight weeks, and five hours a fortnight for twenty weeks.* MR. COLBY.

E 3. ORGANIC CHEMISTRY. Lectures and recitations, illustrated by specimens from the collection of organic chemicals; and supplemented by a course in the preparation of organic compounds. The text book is Serres Principes de Chemie Vol. 3. *Five hours a fortnight for thirty-six weeks.* PROF. AUBERT.

E 4. ORGANIC CHEMISTRY. A short course setting forth the properties of organic compounds, the general methods of preparing them, and special methods for preparing some of the most important.

*Five hours a week for eight weeks.* PROF. AUBERT.

E 5. CHEMICAL READING.—Study and translations of foreign works, reading of the chemical journals, etc.

*One hour a week for sixteen weeks.* PROF. AUBERT.

E 6. TECHNICAL PROCESSES.—These processes include laboratory methods as well as processes used in the arts. Lectures and notes.

*Five hours a fortnight for sixteen weeks.* PROF. AUBERT AND MR. COLBY.

E 7. THE PREPARATION OF ORGANIC CHEMICALS.—This course is designed to make the student familiar with the more common forms of apparatus and processes used in the preparation and synthesis of organic substances.

Cohen's Practical Organic Chemistry is used for reference.

*Eleven hours a fortnight for four weeks.* PROF. AUBERT.

E 8. PHOTOGRAPHY AND PHOTOGRAPHIC CHEMISTRY.—Lectures and practical work in the field and photographic laboratory.

†*Two hours a week for sixteen weeks.* MR. COLBY.

E 9. MINERALOGY.—A course in determinative mineralogy and blow pipe analysis, designed to make the student familiar



with the more common minerals by the use of the working collection, and to teach him to determine unknown minerals by the blow pipe.

The text books are Dana's Manual of Mineralogy and Petrography and Crosby's Tables for Determination of Minerals.

*Three hours a fortnight for sixteen weeks.* MR. COLBY.

E 10. ANALYTICAL CHEMISTRY.—Qualitative Analysis.—The qualitative determination and separation of the acids and bases, which is supplemented by occasional lectures, the writing out of the reactions involved, and other exercises.

Quantitative Analysis.—Gravimetric determinations of Fe in iron wire—Mg in magnesium wire— $\text{Al}_2\text{O}_3$  and  $\text{SO}_3$  in alum—CaO in calcic carbonate—Cl in salt—Cu in copper sulfate—As in arsenious oxyd—Hg in mercuric chlorid—Pb and Sn in solder—Pb, Cu and Zn in brass— $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ , CaO, MgO and  $\text{CO}_2$  in dolomite—complete analysis of feldspar, water analysis &c. This course is extended in some cases and for students in agriculture, pharmacy, and preparatory medicine some of the determinations are replaced by others of greater usefulness to these students.

Agricultural Analysis.—The analysis of fodders, fertilizers, milk, butter and other agricultural products. The methods used are those recommended by the Association of Official Agricultural Chemists. This course is particularly designed for agricultural and chemical students.

Volumetric Analysis and Assaying.—Determinations in acidimetry, alkalimetry, oxydimetry, etc. Special attention is paid to processes used in technical work. A short course in the assay of gold and silver ores is given. The complete course is taken by chemical students. A partial course in volumetric analysis is taken by agricultural and pharmaceutical students.

Toxicology and Biological Analysis.—Determinations of the commoner poisons will be given to preparatory medical, pharmaceutical, and some chemical students.

A short course in biological analysis may be given to preparatory medical and pharmaceutical students. This course includes urine analysis and that of other animal secretions and products, normal and pathological.



Text-books are: Craft's Qualitative Analysis, Appleton's Quantitative Analysis, Medicus Einleitung in die Analyse, Fleisher's Volumetric Analysis, Clark's Assay Notes, Ricketts' Assay Notes.

*The time devoted to analytical chemistry varies. It is stated in the tables.* PROF. AUBERT and MR. COLBY.

E 11. THESIS WORK.—Each student is required, as a condition of graduation, to prepare a thesis on some chemical subject embodying the results of original work in analysis or research.

## F—PHYSICS.

PROFESSOR STEVENS.

F 1. MECHANICS, HYDRAULICS, PNEUMATICS.—Recitations and problems; experiments before the class and lectures on modern physical theories, and subjects not discussed in the text-book.

The text-book is Sheldon's revision of Olmsted's College Philosophy. *Three hours a week for sixteen weeks.*

F 2. SOUND, HEAT, LIGHT, ELECTRICITY.—A continuation of course 1, treated in a similar manner.

*Four hours a week for twenty weeks.*

F 3. LABORATORY WORK —Introductory measurements, including the theory and use of such instruments as the vernier, spherometer, kathetometer, and the hook-gauge; the determination of the co-efficient of friction, the breaking strength of wires, the deflection of beams, the laws of the common and torsion pendulum, and the specific gravity of solids and liquids.

*Four hours a week for sixteen weeks.*

F 4. LABORATORY WORK.—Such problems as the determination of the pitch of a tuning-fork, of specific heat, the use of meteorological instruments, photometry, spectroscopy, measurements of the angle of a prism by Babinet's and Wollaston's goniometers, microscopic measurements and drawings with the camera lucida, various elementary electrical measurements.

*Four hours a week for ten week.*

F 5. MECHANICS. This course is designed to give students in the agricultural course, more extended work in mechanics than that offered in course 1. The text-book is Peck's Mechanics. *Two hours a week for ten weeks.*

F 6. ADVANCED OPTICS. This course continues the work in optics done in course 2. It is partly lectures and partly laboratory work. The lectures are based upon such works as Glazebrook, Heath and Lommel. The laboratory work is chiefly the determination of indices of refraction and wave-lengths of light.

*Five hours a fortnight for sixteen weeks.*

F 7. ADVANCED ACOUSTICS. This is similar to course 6, except that acoustics is made the principal subject. Stone's text-book is used. The work of this course is likely to change from year to year. *Five hours a fortnight for twenty weeks.*

F 8. MATHEMATICAL PHYSICS. One course in mathematical physics is offered each year. This year it is Merriman's Least Squares.

*Five hours a fortnight for sixteen weeks.*

## G—NATURAL HISTORY.

### PROFESSOR HARVEY.

G 1. CRYPTOGAMIC BOTANY.—A detailed study of about thirty type forms of the prominent groups of non-flowering plants. Their life histories are traced in detail by the aid of the compound microscope, and accurate drawings are made. Special attention is given to useful and injurious forms. Such injurious species as blue molds, black molds, fish molds, mildews, wheat smut, corn smut, ergot, potato rot, black knot, are especially studied, and remedies considered. Fungicides and spraying apparatus receive attention. Students are required to collect specimens and prepare them for the herbarium.

Text-books are Bessey's Botany, Martin and Huxley's Biology, Arthur, Barnes and Coulter's Plant Dissection, Campbell's Structural and Systematic Botany, Sedgwick and Wilson's General Biology, Bentley's Botany, Spaulding's Introduction to Botany, Dodge's Practical Biology, Bennet and Murray's Cryptogamic

Botany. Books of reference, special articles and monographs are in constant use. The facilities are a convenient laboratory, a herbarium of five thousand species, a set of Brendel models, charts, and a rich local cryptogamic flora.

*Five hours a fortnight for sixteen weeks.*

G 2. LABORATORY BOTANY.—Instruction in the use of the microscope, micrometers, camera lucida, microtome; the preparation of slides; the study of the life history, analysis, description, classification, illustration of cryptogams, and their preparation for the herbarium.

*Two hours a week for sixteen weeks or four hours a week for ten weeks.*

G 3. ADVANCED PHYSIOLOGY.—Lectures on the anatomy, physiology, hygiene and pathology of the human body. The work is illustrated by the use of a skeleton, manikin, models of the human larynx, ear, eye and brain, charts, microscopic slides, fresh, dried and alcoholic material.

*Five hours a fortnight for twenty weeks.*

G 4. LABORATORY PHYSIOLOGY.—Examination of skeleton, manikin, charts, models, microscopic slides and the dissection of lower animals.

*Two hours a week for twenty weeks.*

G 5. GENERAL INVERTEBRATE ZOOLOGY.—A detailed study of type forms of all the branches of invertebrates.

Packard's Zoology is used as a guide. Martin and Huxley's, Brooks', Colton's, Bumpus', Dodge's and Osborne's laboratory manuals when applicable are followed in laboratory practice. The student makes daily use of the compound microscope in examining minute forms and tissues, makes dissections and careful drawings, and classifies the forms studied. Fresh, dried and alcoholic materials, charts, models, and the working library of reference books are in constant use. The recitations are usually conducted in the laboratory and pertain to the type forms under consideration. *Five hours a fortnight for sixteen weeks.*

G 6. LABORATORY ZOOLOGY.—This course is a continuation of course 5.

*Five hours a week for sixteen weeks.* PROF. HARVEY.

G 7. COMPARATIVE VERTEBRATE ZOOLOGY.—A comparative study of type forms of vertebrate animals. The methods and facilities for work are the same as in course 5. The department is provided with a set of Auzoux's Models and a good working collection of type forms. Special attention is given to the zoology of the domestic animals.

Packard's Zoology is used as a guide. Laboratory manuals and monographs are used in addition. *Seven hours a fortnight for sixteen weeks.* PROF. HARVEY.

G 8. LABORATORY ZOOLOGY.—Museum work; study of charts, and models, and of the life history of special forms; dissections of a fish, frog, turtle, bird, and rat; methods of preparing specimens for collections.

*Four hours a week for twenty weeks.*

G 9. ENTOMOLOGY.—The study of the anatomy, physiology, classification, and economic importance of insects. Especial attention is given to injurious and beneficial insects. Insecticides and approved methods of destroying insects are considered. The department has for illustration a collection of insects, charts, models, and an abundant insect fauna.

The text-books are Packard's Entomology for Beginners, and Comstock's Entomology. A full set of Riley's, Fitch's, and Lintner's Reports, the entomological publications of the U. S. Department of Agriculture, the Illinois Reports, various other State and experiment station reports and current literature are used for reference. *Five hours a fortnight for twenty weeks.*

G 10. GEOLOGY.—Especial attention is given to the origin and formation of soils, to the method of conducting a geological survey and to the geology of Maine. Excursions are made to points of interest. The course is illustrated by mineral, rock, and fossil specimens, and by charts, maps, and diagrams.

The text-book is Le Conte's Elements of Geology. *Five hours a fortnight for sixteen weeks.* PROF. HARVEY.

## H—AGRICULTURE.

PROFESSOR JORDAN; PROFESSOR GOWELL; DR. RUSSELL.

H 1. AGRICULTURAL CHEMISTRY. Lectures and recitations on the chemical changes in nature important to agriculture, the composition of air, soils, natural waters and plants, the sources and assimilation of plant food, and the chemical processes and methods of investigation by which these subjects are studied.

*Five hours a fortnight for sixteen weeks.* PROF. JORDAN.

H 2. AGRICULTURAL CHEMISTRY. A continuation of course 1. Lectures and recitations in physiological chemistry, including the composition of cattle foods and human foods, the composition of the animal body, the chemical changes involved in the digestion and assimilation of food; also the chemistry of milk and dairy products, and the chemical processes and methods of investigation by which these subjects are studied.

*Five hours a week for twenty weeks.* PROF. JORDAN.

H 3. AGRICULTURAL CHEMISTRY. Lectures on the origin, composition, preparation and use of commercial fertilizers, the supply, composition, care and use of farm manures, and the general considerations which pertain to the maintenance of soil fertility.

*Five hours a fortnight for eight weeks.* PROF. JORDAN.

H 4. AGRICULTURAL PHYSICS. Lectures on the relation of soils to heat and moisture, the mechanical condition of soils best suited to plant growth and the objects to be gained by cultivation.

*Five hours a fortnight for ten weeks.* PROF. JORDAN.

H 5. AGRICULTURAL ENGINEERING. Lectures on farm drainage, irrigation, water supply for stock and household, farm implements and machinery, handling crops and construction of farm buildings, sites, etc.

*Five hours a fortnight for ten weeks.* PROF. GOWELL.

H 6. STOCK FEEDING.—Lectures on the production of cattle foods and their composition, on formulating rations for milk and meat production; and application of the lectures to the animals in the herd.

The text-books are Armsby's Cattle Feeding, Stewart's Feeding Animals, and station reports. *Five hours a fortnight for eight weeks.* PROF. GOWELL.

H 7. DAIRYING.—Lectures upon the formation and composition of milk; sources of infection; bacteria and their relation to dairying; ferments and their effects.

The text-books are Grotenfelt and Woll's Principles of Modern Dairy Practice, Stewart's Dairyman's Manual, Flint's Milch Cows and Dairy Farming, and Arnold's American Dairying. *Five hours a week for six weeks.* PROF. GOWELL.

H 8. STOCK BREEDING.—Lectures upon animal reproduction, the principles of breeding, and the means of improvement and development. Practice is given in judging animals by a scale of points.

The text-books are Miles's Cattle Breeding, Saunders's Horse Breeding, and Curtis' Breeds. *Five hours a week for eight weeks.* PROF. GOWELL.

H 9. POULTRY INDUSTRY.—Lectures, with practice in handling poultry, and judging by a scale of points; in breeding; in hatching by natural and artificial processes; and in the use of machinery. Caponizing, and the construction and arrangement of buildings receive careful attention.

*Five hours a week for six weeks.* PROF. GOWELL.

H 10. DAIRY PRACTICE.—The treatment and handling of milk and cream; milk testing for fat and other solids; aeration, pasteurization and sterilization of milk and cream; the application of acid tests and ferments to butter and cheese making; operating and caring for the boiler, engine, gravity creamers, centrifugal separators, churns, workers, vats, presses, and the making, curing and judging of butter and cheese, together with the business management of factories and creameries.

Each student must provide himself with two suits of clothes made of white drilling.

*Five hours a week for twenty weeks.* PROF. GOWELL.

H 11. VETERINARY SCIENCE.—Lectures, demonstrations and clinics, illustrated by models, natural preparations and living animals. Particular attention is given to means of preserving



health, the nursing of sick animals, the prevention of contagious diseases and the treatment of the most common and simple diseases of cattle and horses.

*Five hours a fortnight for twenty weeks.* DR. RUSSELL.

H 12. VETERINARY PRACTICE.—As far as there is opportunity students will make practical application of the instruction given in the lectures on veterinary science. They will prescribe and administer simple remedies and have the care of sick animals. DR. RUSSELL.

H 13. BACTERIOLOGY.—Methods of cultivating bacteria, the morphological and biological character of bacteria and fungi particularly of those relating to disease and of those of importance from an economic standpoint, the methods of making biological examinations of air, water, etc. DR. RUSSELL.

## I—HORTICULTURE.

PROFESSOR MUNSON.

I 1. POMOLOGY. A discussion of the most approved methods of fruit culture; the most important enemies and diseases of fruits, with remedies and preventives.

*Five hours a fortnight for ten weeks.*

I 2. OLERICULTURE, OR VEGETABLE GARDENING. Lectures concerning the leading garden vegetables with directions for their culture in the field and under glass; also practical demonstrations.

*Three hours a week for ten weeks.*

I 3. PLANT VARIATION. A discussion of the underlying principles of horticulture. The course includes a consideration of the origin and distribution of cultivated plants; their variation as affected by soil, climate and cultivation; also a systematic study of plant-breeding, including the methods and effects of crossing, the principles of selection and the influence of heredity. Students in this course must have taken course 6.

*Three hours a week for eight weeks.*

I 4. LANDSCAPE GARDENING. A discussion of the principles of landscape art and their application to the embellishment of rural surroundings.

*Three hours a week for eight weeks.*



I 5. LABORATORY HORTICULTURE. Practical work in the propagation and culture of plants, the construction and management of forcing structures, and the making of plans for rural improvements.

†*Four hours a week for twenty weeks, and five hours a week for sixteen weeks, in the junior and senior years respectively.*

I 6. GENERAL BOTANY. Lectures and other class work. A study of the structure and functions of the organs of plants; the relation of the plant to soil and atmosphere; the description, classification and naming of plants; the relationship of plants of the greatest economic importance. The lectures will be supplemented by a study of charts and Brendel plant models, also by work in the general herbariums, the greenhouses and the field. Gray's Lessons and Manual of Botany is used for reference. *Five hours a week for twenty weeks.*

I 7. HISTOLOGY OF PLANTS. A description and comparison of tissues with investigation of the minute anatomy of vegetable organs and studies in the phenomena of cell development and fertilization.

†*Five hours a fortnight for ten weeks.*

## J—DRAWING.

ASSISTANT PROFESSOR GROVER; MR. COLBY.

J 1. FREE-HAND DRAWING.—This course consists of the exercises in parts five, seven and nine of Bartholomew's Industrial Drawing, drawing geometrical solids such as the cube, cylinder and prism, common objects such as chairs and tables, and practice in free-hand lettering.

†*Five hours a fortnight for sixteen weeks.* MR. COLBY.

J 2. MECHANICAL DRAWING.—This course consists of instruction and practice in the care and use of drawing instruments, in the drawing of geometrical problems and in water colors. Especial attention is given to accuracy and neatness.

†*Five hours a week for twenty weeks.* PROF. GROVER.

J 3. MATHEMATICAL DRAWING.—A short course in the plotting of functions, and in the solution of equations by the graphic methods.

†*Three hours a week for ten weeks.* PROF. GROVER.

## K—CIVIL ENGINEERING.

PROFESSOR HAMLIN; ASSISTANT PROFESSOR GROVER.

K 1. MECHANICAL DRAWING.—Problems in shades and shadows, and dimension drawing.

The text-book is Faunce's Mechanical Drawing. †*Seven hours a week for sixteen weeks.* PROF. GROVER.

K 2. PLANE SURVEYING.—This course includes recitations on the general principles of land surveying, the laying out of land, the dividing of land, surveying of public lands, direct leveling, and the variation of the magnetic needle.

The text-book is Staley's Gillespie's Surveying. *Five hours a fortnight for twenty weeks.* PROF. GROVER.

K 3. FIELD WORK IN SURVEYING.—The student is made familiar with the uses of the chain, compass, transit, and level, working with each in the field. Instruments are adjusted, original surveys made, and old lines retraced. Deeds are examined, and descriptions of property traced back in the Penobscot County Registry of Deeds. In the drawing room plats are prepared of the surveys made in the field.

†*Two hours a week for ten weeks and six hours a week for ten weeks.* PROF. GROVER.

K 4. RAILROAD ENGINEERING.—Lectures and recitations on the theory of railroad curves, switches, turnouts, and slope stakes, the calculation of earth works, and the resistance to trains offered by grades and curves.

The text-book is Searles's Field Engineering.

*Seven hours a fortnight for twelve weeks.* PROF. GROVER.

K 5. RAILROAD, FIELD AND OFFICE WORK.—The basis of this course is the location and detailed survey of a railroad several miles long. The curves are laid out, levels taken, and all the necessary measurements made to enable the student to compute the excavations and embankments and estimate the cost of construction.

†*Ten hours a week for sixteen weeks.* PROF. GROVER.

K 6. HIGHWAY ENGINEERING.—Attention is given chiefly to country highways and relates to the location, construction, and improvement of roads under different conditions of soil, climate, and traffic. The text-book is supplemented by lectures.

The text-book is Gillespie's Roads and Railroads. *Seven hours a fortnight for four weeks.* PROF. HAMLIN; PROF. GROVER.

K 7. MECHANICS.—This course consists of problems in the composition and resolution of forces, followed by exercises in finding the moment of inertia, the center of gravity, the shearing force and bending moment.

The text-book is Lanza's Applied Mechanics. *Five hours a week for sixteen weeks and five hours a week for twelve weeks.* PROF. GROVER.

K 8. GRAPHIC STATICS.—The principles involved in the graphical resolution of forces are given by lectures. The stresses in the different parts of various trusses, under uniform or concentrated loads, are determined graphically in the drawing room. Lectures and exercises in the drawing room.

*Five hours a week for eight weeks.* PROF. GROVER.

K 9. GENERAL DRAWING.—Isometric and cabinet projections, and perspective, and the preparation of working drawings. Lectures and exercises in the drawing room.

*Six or ten hours a week for twelve weeks.* PROF. GROVER.

K 10. STEREOTOMY.—A practical application of the methods of descriptive geometry. The student prepares the drawings required by the stone cutter and mason in building different kinds of masonry structures, such as retaining walls, bridge abutments, piers, and arches. Lectures and exercises in the drawing room.

†*Seven hours a week for ten weeks.* PROF. GROVER.

K 11. SANITARY ENGINEERING.—Land drainage, drainage of houses and towns, plumbing of houses, sewerage of towns and cities, and the ventilation of houses are considered. Lectures.

*Seven hours a fortnight for ten weeks.* PROF. HAMLIN.





VIEWS OF THE COLLEGE CAMPUS.

K 12. HIGHER SURVEYING.—The student is taught the use of the plane table, solar compass,—as applied to the survey of public lands—stadia measurements, topographical surveying, and the elements of geodesy, such as the correct measurement of base lines, calculation of triangulation. No text-book is used.

*Ten hours a week for eight weeks.* PROF. HAMLIN.

K 13. MECHANICS OF MATERIALS.—A detailed study of the properties of materials used in engineering structures, such as iron, steel, wood, and their resistance to bending, breaking, extension, and compression, under the various conditions of practice. The testing laboratory is well equipped.

The text-books are Lanza's Mechanics, Merriman's Mechanics of Material, and lectures. *Five hours a week for nine weeks.* PROF. HAMLIN.

K 14. FOUNDATIONS AND MASONRY CONSTRUCTION.—Attention is given to the testing and use of the materials of masonry construction, building stone, brick, cement and lime. Among the subjects considered are different classes of foundations, natural and artificial; the stability of dams and retaining walls; the designing of bridge piers and abutments. The class room work is supplemented by exercises in the laboratory.

The text-book is Baker's Masonry Construction. *Seven hours a fortnight for twenty weeks.* PROF. GROVER.

K 15. HYDRAULICS.—The weight, pressure and motion of water; the flow of water through orifices, and through pipes under pressure; the measuring of weirs and weir gauging; the flow of water in open channels, mains and distribution pipes; distribution systems; the construction of water works for towns and cities. The measurement of the flow of rivers is illustrated by the application of the current meter and the various forms of floats to the Penobscot river or some of its large branches. The department is well supplied with apparatus. The course includes frequent lectures and the solution of numerous problems.

The text-books are Fanning's Hydraulics and Church's Mechanics of Engineering Fluids. *Five hours a week for seven weeks devoted to lectures and seven hours a week for eight weeks devoted to field work.* PROF. HAMLIN.



K 16. DESIGNING AND THESIS WORK.—The student is taught the method of calculating the stresses in the various forms of roof and bridge trusses, the methods of loading, and makes complete designs for bridges in wood and in iron, working out the dimensions of the parts, and preparing the drawings for the shop. Lectures.

The text-book is Johnson's Modern Framed Structures. *Seven hours a week for eight weeks and twelve hours a week for twenty weeks.* PROF. HAMLIN.

### L—MECHANICAL ENGINEERING.

PROF. FLINT; MR. WEBB; MR. DURGIN.

L 1. MACHINE DESIGN.—This subject is studied in the most practical way. The theoretical rules and formulas are applied to existing machines of standard manufacture for the comparison of the actual and theoretical dimensions. The rules for the dimensions of brackets, beams, posts, etc., are investigated and compared with results obtained by experiment. The subject of riveted joints is fully considered, the student being required to solve numerous problems on the efficiency of the various kinds. Attention is given to the designing of bolts, keys, etc. Lubricants are studied and their adaptability to different kinds of machinery discussed. The subject of work in its various forms is investigated. The work done in the cylinder of an engine is determined by means of the indicator and compared with that done on the crank-pin at the same time. The diameter of line shafting, size of pulleys and crank shafts, weight of fly wheels, size of connecting rods, etc., are calculated in accordance with the best modern practice. In connection with this work the student is required to design a complete speed lathe and to make working drawings for its construction. The course includes numerous other exercises of a similar character.

*Seven hours a fortnight for twenty weeks.* PROF. FLINT.

L 2. CARPENTRY.—Instruction and practice in the care and sharpening of tools, the squaring of stock, and taking work out of wind; followed by practice in making the different joints in soft and hard wood. Particular attention is paid to accuracy of



workmanship. Instruction is given in wood turning, intended to acquaint the student with the use of the tools and the ordinary operations of wood turning. The tools are furnished by the department. The charge for materials is \$5.00 a term.

†*Six hours a week for sixteen weeks.* MR. DURGIN.

L 3. FORGE WORK.—The work begins with the simple operations of drawing and upsetting. Then follow the welding of straight pieces of various sizes, the making of rings, and chain links, the welding of eye bolts and bolt heads, etc. Each student makes from steel a center punch, cold chisels, and a full set of lath tools, which are finished and tempered for future use in the machine shop. Each student is required to furnish a forging hammer, calipers and square at a cost of \$2.50. The charge for materials is \$5.00 per term. As a part of this course instruction is giving in foundry work. Moulding and pouring are done by the student under the instruction of a practical foundryman. The tools are furnished by the college. No charges are made.

†*Eight hours a week for twenty weeks.* MR. WEBB.

L 4. ANALYTIC MECHANICS.—Elementary principles and definitions; composition and resolution of forces; center of gravity; friction; virtual velocities; elementary machines; work and energy; moment of inertia.

The text-book is Bowser's *Analytic Mechanics*. *Five hours a week for thirty-six weeks.* MR. WEBB.

L 5. KINEMATICS. This subject is studied with reference to the construction of cams, lobed wheels and gear teeth. The various methods by which one kind of motion may be transformed into another are investigated and analyzed, and illustrated by the solution of practical problems. The construction of cycloidal and involute gears is studied both theoretically and practically by means of problems and models.

Lectures. *In the mechanical engineering course, five hours and in the electrical engineering course three hours a week for sixteen weeks.* PROF. FLINT.

L 6. LINK AND VALVE MOTION.—The design and proportion of engine cylinders, steam pipes, and ports; the design and working of engine valves; the setting of eccentrics; adjustable

eccentrics; the design and working of the locomotive link motion with its connections. Problems in slide valve and locomotive link motion are worked out in the drawing room.

The text-book is Auchincloss's *Link and Valve Motion*. *In the mechanical course four hours, and in the electrical course two hours a week for sixteen weeks.* MR. WEBB.

L 7. MACHINE WORK.—This course commences with exercises in filing and chipping, which occupy from thirty to forty hours. The work then consists of ordinary lathe work, drilling, boring and threading in the lathe, making cut gears, machinist's taps, finished bolts, and exercises on the planers and shaper. In addition to the tools procured and made while in the forge shop, each student is required to provide himself with center guage, steel scale, and a set of files at a cost of \$2.50. The charge for materials in the courses in machine work is \$5.00 a term. *The time devoted to machine work varies. It is stated in the tables.* MR. WEBB.

L 8. STEAM ENGINE.—The steam engine is studied with reference to its adaptability as a prime mover or source of power. The various details of a steam engine are calculated and drawings of them are made. The results are compared with those of the best practice. The student is given a thorough drill with the indicator; by means of diagrams he is taught to determine the setting of valves, to calculate the horse power, and to estimate the water consumption, and the number of pounds of coal required per horse-power per hour. This study makes the student familiar with the indicator and planimeter, and the method of making efficiency tests of steam plants. One-third of the time is given to recitations and two-thirds to drawing.

*Two hours a week for sixteen weeks.* PROF. FLINT.

L 9. HYDRO-MECHANICS.—The behavior of liquids in motion and under pressure, flowing through pipes and in open channels, with problems involving a large number of different conditions, is studied for its usefulness in determining the size of pipes suitable for various purposes.

The text-book is Bowser's *Hydromechanics*. *Three hours a fortnight for twenty weeks.* PROF. FLINT.

L 10. STEAM BOILERS.—The characteristics of steam and its behavior in pipes and boilers, with particular attention to its action in the cylinders of engines are considered. Problems involving the properties of saturated steam are solved; and the student is required to design a boiler to run an engine under given conditions, and to make a complete set of detailed drawings for its construction. He is also required to calculate sizes of steam pipes and safety valves.

*In the mechanical engineering course five hours, and in the electrical engineering course two hours a week for twenty weeks.* PROF. FLINT.

L 11. TESTING.—Instruction is given in testing steam gauges, boilers, etc. The department is supplied with apparatus for the purpose. The properties of the various metals and their behavior under tension and compression, are illustrated by the use of the testing machine.

*Five hours a week for two weeks.* PROF. FLINT.

L 12. STEAM ENGINE DESIGNING.—Drawings are made of the more important parts of the design worked out in course 8.

*†Ten hours a week for sixteen weeks.* PROF. FLINT.

L 13. STEAM BOILER DESIGNING.—Drawings are made in detail from the calculations worked out in course 10.

*†Ten hours a week for ten weeks.* PROF. FLINT.

L 14. THESIS WORK.—Each student is required to prepare a thesis, as a condition of graduation, which is to consist of a design of some piece of machinery.

## M—ELECTRICAL ENGINEERING.

PROFESSOR STEVENS; MR. CHAPIN.

M 1. ELECTRICITY AND MAGNETISM. This continues the subject of electricity and magnetism begun in physics. Lectures are given, and laboratory methods and results are discussed with the class. The text-book is Silvanus Thompson's Electricity and Magnetism. *Two hours a week for sixteen weeks.* MR. CHAPIN.

M 2. ELECTRICITY AND MAGNETISM. A continuation of course 1. The work is more directly connected with the dynamo and apparatus connected with its operation.

*Three hours a week for twenty weeks.* MR. CHAPIN.

M 3. ELECTRICAL MEASUREMENTS AND TESTING. This is the usual junior laboratory course. The work consists of the measurement of resistance, potential, capacity and current, testing galvanometers, electrolysis, etc.

*Four hour a week for sixteen weeks.* MR. CHAPIN.

M 4. ELECTRICAL TESTING. A continuation of course 3. Introductory work on the dynamo is begun. Students taking this course work in the shop six hours a week. This arrangement gives them an opportunity to construct for themselves many electrical devices including small dynamos and moters.

†*Four hours a week for twenty weeks.* MR. CHAPIN.

M 5. ELECTRICAL MACHINERY.—Lectures on the theory and construction of dynamos, motors, etc.

*Two hours a week for sixteen weeks.* MR. CHAPIN.

M 6. ELECTRICAL ENGINEERING.—In this course is taken up the theory of alternate current machinery, and its application to electric lighting; the electric railway; light and power stations, etc. The finely equipped light and power station at Veazie, a few miles from the College, affords a valuable opportunity for the students to see the practical arrangement and working, of both direct and alternate current machines.

*Two hours a week for twenty weeks.* MR. CHAPIN.

M 7. ELECTRICAL DESIGN.—This course corresponds to the course in machine design given to the students in mechanical engineering. Each student is required to make the computations and complete drawings for a dynamo.

†*Six hours a week for sixteen weeks.* MR. CHAPIN.

M 8. ELECTRICAL DESIGN.—A continuation of course 7. Problems in light distribution, etc., are taken up.

†*Five hours a week for twenty weeks.* MR. CHAPIN.

M 9. LABORATORY ELECTRICITY.—Tests of electrical instruments; experimental work with dynamos, motors, etc.; tests of efficiency; photometric tests of electric lamps; the practical management of the electric light plant.

†*Four hours a week for sixteen weeks.* MR. CHAPIN.

M 10. LABORATORY ELECTRICITY AND THESIS WORK.—A continuation of course 9. The student devotes a large part of his time to some special investigation selected as the subject for his graduating thesis.

†*Six hours a week for twenty weeks.* MR. CHAPIN.

M 11. THEORETICAL ELECTRICITY. A short course of lectures treating the subject from the theoretical standpoint. The topics discussed will vary from year to year, but will be based upon one of the following subjects: The mathematical theory of electricity; the nature of electricity, and Hertz's investigation; the theory of adjustment of observations applied to electrical work.

*One hour a week for twenty weeks.* PROF. STEVENS.

## MILITARY SCIENCE AND TACTICS.

PROFESSOR HERSEY.

N 1. PHYSICAL TRAINING.—In connection with the work of this department, the members of the Freshman Class are given a course in physical training, under the personal direction of the Professor of Military Science. The aim is to secure a symmetrical development of the muscular system, and to arouse a pride in firm muscles, a clear skin, and an upright carriage. At the beginning of the course each student is examined and measured to discover physical defects, and individual exercises are prescribed for their correction. The work required of all members of the class comprises free movements, sand bag exercises, deep breathing exercises, practice with dumb bells, wands, and Indian clubs.

†*Two hours a week for thirty-six weeks.*

N 2. MILITARY SCIENCE.—(a.) Infantry exercises begin with setting-up exercises and military gymnastics, and continue with manual of arms and bayonet exercise. School of the company, school of the battalion, and extended order movements follow. (b.) Target practice at known distances up to six hundred yards, and skirmish firing over range of six hundred yards. Marksman's buttons are awarded to cadets who qualify. (c.) Military signalling with flag, lantern, heliograph, and field telegraph. (d.) Band practice. (e.) One week is spent in camp. Cadets are instructed in the duties of a sentinal, make practice marches of from five to fifteen miles, learn advance guard and outpost duties, make hasty fortifications, and work out practically the problems of minor tactics.

*Three hours a week for the first and last thirteen weeks of each year.*

N 3. MILITARY SCIENCE.—Recitations on U. S. Infantry Drill Regulations and Manual of Guard Duty.

*Three hours a fortnight for ten weeks of the sophomore and junior years.*

N 4. MILITARY SCIENCE.—Lectures and recitations on military science, including organization, administration, discipline and instruction of armies; logistics; security and information; manufacture and use of gunpowder; high explosives; small arms; cannon; projectiles; armor; mines and torpedoes; construction of military bridges and destruction of bridges, roads, etc.; coast defences; military law and military history; closing with studies on campaigns illustrating the principles of the art of war.

The text-book is Caleff's Notes on Military Science. *Three hours a fortnight for ten weeks.*

ESSAYS. Each member of the senior class is required to submit an essay at the beginning of the spring term on a military subject, preferably allied to his other college work.



## THE TRAINING SCHOOL IN AGRICULTURE.

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Three courses of lectures are offered, designed for farmers or young men expecting to become farmers, who are unable to devote a longer time to study.

These courses begin on the first Tuesday of January of each year and continue six weeks. They are made up of lectures and recitations arranged in three divisions or groups. Each group consists of four lectures per day for thirty days, or one hundred and twenty lectures in all. A student can attend the lectures of one group only and should be prepared on coming to make his selection.

The instruction includes lectures and recitations upon agricultural chemistry, animal industry, dairy husbandry, horticulture, veterinary science, agricultural engineering, entomology, and business law, combined with practical work in the barn, dairy building, and forcing houses.

### THE GENERAL COURSE.

This course is designed to give a variety of information useful to the general farmer, without giving special attention to one branch of business.

Plant and animal nutrition, 20 lectures. Commercial fertilizers and farm manures, 10 lectures. Breeds, breeding and feeding, 25 lectures. Agricultural engineering, 15 lectures. Injurious insects and fungi, 15 lectures. Veterinary science, 20 lectures. Business law, 15 lectures. Lectures in the morning and practical work in the afternoon.



## THE COURSE IN DAIRY FARMING.

This course is designed for those who are to make dairying a specialty, or for those who propose to become expert butter makers or cheese makers. If the course is pursued during two terms, and two seasons' satisfactory work is performed in some butter or cheese factory, the student will be granted a certificate of proficiency.

Plant and animal nutrition, 20 lectures. Commercial and farm manures, 10 lectures. Breeds, breeding and feeding, 25 lectures. Milk, butter and cheese dairying, 20 lectures. Milk testing, 5 lectures. Care of boilers, 5 lectures. Veterinary science, 20 lectures. Business law, 15 lectures.

Lectures in the morning and practical work in the dairy in the afternoon.

## THE COURSE IN HORTICULTURE.

This course is designed for those who expect to give special attention to fruit growing, market gardening or floriculture.

Plant and animal nutrition, 20 lectures. Commercial and farm manures, 10 lectures. Economic botany, 15 lectures. Vegetable gardening and fruit growing, 30 lectures. Farm machinery, 10 lectures. Injurious insects and fungi, 15 lectures. Business law, 15 lectures.

Lectures in the morning and practical work in the forcing houses in the afternoon.

## THE SUMMER SCHOOL.

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A summer school, especially intended for teachers and students preparing for college, will be maintained for three weeks, beginning July 15, 1895, under the joint control of the State Superintendent of Schools, and of the college.

Instruction will be given in chemistry, physics, geology, botany, zoology, English, civics, pedagogy and child study, and domestic economy. There will be recitations and lecture courses in each subject, and laboratory courses in each except English, civics and pedagogy. In physics and chemistry, there will be two laboratory courses, one consisting of the series of exercises recommended by the "Committee of Ten," the other a more advanced course.

In the evenings there will be lectures, concerts, conferences, and social entertainments. Saturdays, will be devoted to field work, excursions, and amusements. Tuition will be free, but each laboratory student will be charged \$5.00 for materials and apparatus. Inquiries may be addressed to the President of the College, at Orono, or to the Superintendent of Schools, at Augusta.

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## EXTENSION COURSES.

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University extension courses were planned last year and announced in the catalogue. The growth of the college in its regular courses has been so much greater than was expected, that the instructors have as much work as they can do satisfactorily. Systematic extension work, except in agricultural lines, is therefore given up.

## THE FARM COURSE.

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The farm course, is an application of the methods of university extension to agriculture. It consists of two lectures each day for one week. The subjects of the lectures offered during the present year are stated in detail below. The courses begin in the fall and continue until about the first of April. Courses will be given wherever a class of sufficient size—at present, twelve—can be got together under an agreement to attend the meetings of the class regularly, and to pay the expenses involved. The expenses depend largely upon the distance which the lecturers must travel, and can be reduced when two courses are carried on at the same time in adjacent places. It is the intention to illustrate the subjects under discussion as fully as possible by the use of charts, pictures, lantern slides, apparatus, and specimens. The more important apparatus, such as the Babcock milk test, can be shown in actual operation. Reading courses on parallel lines are provided. Quizzes and examinations will be given for those who desire them. The courses are open to men and women alike.

### LIST OF LECTURES.

During the season of 1894-5 the lectures will include the following subjects and lecturers:

Four lectures by Professor Jordan. (1) The composition of the air, soil and plants. (2) Relation of the plant to the soil and air. (3) Commercial manures—their sources, preparation, composition and use. (4) Farm manures—their production, composition and treatment.

Four lectures by Professor Gowell. (1) Principles of breeding animals. (2) Principles of feeding animals. (3) Cattle foods and their sources. (4) Milk and its production.

Four lectures by Professor Munson. (1) Small fruits. (2) The orchard. (3) Some enemies and diseases of plants. (4) Horticulture and the home.

## THE LIBRARY AND READING ROOM.

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The library on the first floor of Coburn Hall, contains nearly nine thousand bound volumes, and about two thousand pamphlets. About sixty of the most important literary and technical papers, magazines, and reviews, both American and foreign, are kept on file here. The growth of the library is slow, as it has no endowment, and is dependent on what the trustees are able to appropriate for its needs. Many volumes are received from the U. S. government each year, but as the library is not a depository of public documents, the sets of government publications are quite incomplete.

The library is open for consultation and circulation of books eight hours daily during the week. Experiments have been made, at different times, in evening opening of the library, but the use made of it was so small that it was discontinued. Students are allowed direct access to the shelves. Students may have two books each at a time, to be kept two weeks, when they may be renewed, unless some one else has put in an application for them. There is a fine of two cents a day for books kept over time. If additional books are needed for special work they can be had on application to the librarian.

The books are arranged according to Mr. Dewey's decimal classification, by which they are divided first into the ten classes: 0. General works; 1. Philosophy; 2. Religion; 3. Sociology; 4. Sociology; 5. Science; 6. Useful arts; 7. Fine arts; 8. Literature; 9. History. Each of these classes is divided into ten divisions, which are again divided and sub-divided. In this system the numbering of the books indicates their subjects, and not a fixed place on the shelves. There are two card catalogues; the author and title catalogue, arranged alphabetically, and the subject catalogue in which the cards are arranged in order of subjects.

A reading room located on the first floor of Oak Hall, under the management of the students, is provided with the principal daily and weekly newspapers.

## THE MUSEUM.

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The museum is located in the two upper stories of the wing of Coburn Hall. In the upper story are exhibited the mineral collection, geological specimens and plant models. The mineral cabinet embraces a general collection of three hundred species of the more common minerals which are arranged for study according to Dana's system. There is a fine collection of economic minerals, embracing the important ores useful in the arts and sciences, donated by the United States National Museum. The geological cabinet embraces a small collection of plant and animal fossils and a collection of 250 specimens of the more important fragmental, crystalline, and volcanic rocks, arranged in drawers. The collection of Brendel plant models is assigned a special case.

On the lower floor are displayed the collections of vertebrate and invertebrate animals and a set of animal models. The invertebrates include working collections of sponges, hydroids, corals, echinoderms, vermes, mollusks, crustaceans, and insects, besides interesting native and exotic exhibition specimens of all the above groups. The vertebrates include the nucleus of a collection of State fishes, reptiles, birds and mammals, besides a set of type exotic mammals. The collection of animal models embraces a human manikin, special models of the human eye, ear, and larynx, and models of an insect, leach, snail, fish, snake and bird.

## THE AGRICULTURAL EXPERIMENT STATION.

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The Agricultural Experiment Station of the Maine State College owes its existence to the passage by Congress of an act, popularly known as the Hatch Act, which became a law on March 2, 1887. This act specifically provides that the Station shall be a department of the College. As such it has been organized and therefore sustains the same relation to the governing board as the departments of instruction.

Such are the conditions, however, under which this department was created, placing it in peculiar and intimate relations with the agriculture of the State, and so essential is it to satisfy the general government that the lines of work and expenditure of funds are in accordance with the terms of the law, that the Station has an administration and equipment which appear to place it somewhat apart from the general body of the institution.

The affairs of the Station, excepting the selection of its officers, are considered by a Station Council, which consists of a committee of the Trustees of the College, the President of the College, members of the Station Staff, and representatives from the State Board of Agriculture, the State Pomological Society and the Patrons of Husbandry. This Council is advisory in its capacity and refers the results of its deliberations to the Trustees for ratification. In this way a decision is reached as to the experiments and investigations to be undertaken, and the distribution of the expenditures in various directions, otherwise than salaries.

The Station Staff includes ten persons: a director, two chemists, a botanist and entomologist, a veterinarian, a horticulturist and an assistant, a meteorological observer, a foreman of experimental work in the field and barn, and a stenographer.



The appliances which the Station has at its command consist of a building which contains the office and chemical and bacteriological laboratories well equipped with apparatus, a finely constructed forcing house 65 by 18 feet, devoted to the study of plant nutrition, a part of another forcing house 100 by 20 feet for general horticultural experiments, rooms for photographic work, meteorological apparatus, an unusually well built barn 100 by 40 feet convenient for digestion and feeding experiments with both cattle and swine, twenty-five acres of land occupied by general field experiments, a few acres set with large and small fruits, a vegetable garden, farm, garden and dairy apparatus, and a varying number of experimental animals. A certain amount of fruit has been set in several localities in the State, which is under the general supervision of the station horticulturalist.

The Station receives \$15,000 annually from the general government which is supplemented by a small sum derived from the sale of farm and garden products.

The act of Congress declares that the experiment stations shall be established "in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and application of agricultural science." This general purpose is to be accomplished by making it "the object and duty of said experiment stations to conduct original researches or verify experiments" along various lines which are specified somewhat in detail, but which considered broadly relate to plant and animal nutrition, plant and animal diseases and pests, and the technics of the various methods involved in crop production and animal husbandry. The Maine Experiment Station is therefore by legal enactment, as it is believed to be in fact, a department of experiment and investigation. Its true purpose is evidently not to give that sort of instruction for which provision is made in the agricultural departments of the "land grant" colleges, but rather to enlarge the domain of that scientific knowledge which is intimately related to the art of agriculture and to disseminate the



facts which it may acquire in such a manner as to most generally and safely secure for them their proper place in agricultural practice.

It is certainly incumbent upon this State to shape its work with reference to the special features and needs of Maine agriculture. An effort has been made to do so, and as Maine is one of the older states, the fertility of whose soil is somewhat impaired, and as stock husbandry in general, and more especially dairy husbandry, is to an increasing extent the farmer's main reliance under the conditions which prevail in this State, the activities of the Station have heretofore largely related to fertilizers, plant and animal nutrition, and to the problems which pertain to the production and handling of milk. Orchardring and market gardening occupy an important place in the plans of work and the diseases and pests of plants and animals are given much attention.

The publications of the Station consist of annual reports and frequent short bulletins. The latter are intended to convey to farmers, in a form adapted to popular comprehension, all the results that in any way relate to farm practice.

The annual reports, on the other hand, are expected to contain a fuller statement of the proceedings of the Station, involving to some extent the technical language of science, with a completeness of data that might be bewildering to those not accustomed to a close analysis of language and facts. These reports will include nothing of value to practical agriculture not set forth in the bulletins.

All station bulletins are sent to farmers on request, free of expense. The annual reports are sent only when a statement is made that they are especially desired.

## THE FIELD DAY.

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One day in each year is known as the field day of the agricultural department. The usual college exercises are omitted and all departments are thrown open to visitors. Especial effort is made to exhibit the facilities of the agricultural department in the most thorough manner. Special rates are obtained on the railroad for those who come from a distance. The attendance has ranged from twelve hundred to seventeen hundred persons. The program includes informal talks by members of the faculty in regard to the collections, demonstrations with some of the more important apparatus, exhibitions of improved agricultural machinery, the operation of the dairy building, an exhibit of agricultural products, tools, and supplies contributed by manufacturers and dealers. Tests of new agricultural machinery are made. The experiments of the Experiment Station are explained by the investigators.

In the afternoon the cadets give an exhibition drill, and later a meeting is held in the chapel. Addresses are made by representatives of the Board of Trustees, the Faculty of the College and the various important agricultural organizations, and by other distinguished visitors. Circulars in regard to Field Day may be obtained by addressing the Professor of Agriculture.

## THE GOVERNMENT OF THE COLLEGE.

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The College is maintained at public expense for the public good. Those who participate in its benefits should therefore be required to fulfill faithfully their obligations as loyal members of the institution, of the community and of the commonwealth. All students owe to the public for its expenditure in their behalf an equivalent in the form of superior usefulness and prompt performance of duties. As members of the community they are amenable to the law. The College recognizes its relation to the commonwealth as a State institution and a part of the State government, and will not shield students from the consequences of acts in violation of State laws. This attitude is expressly recognized and commanded by an act of the Legislature which requires that in the case of offences against the public order students, like other persons, shall be held responsible for their deeds by the officers of the law. The College will obey this command of the State both loyally and faithfully, and not only refrain from placing any obstacles in the way of the execution of the law, but on the contrary do everything proper to assist in its administration.

### THE COLLEGE REGULATIONS.

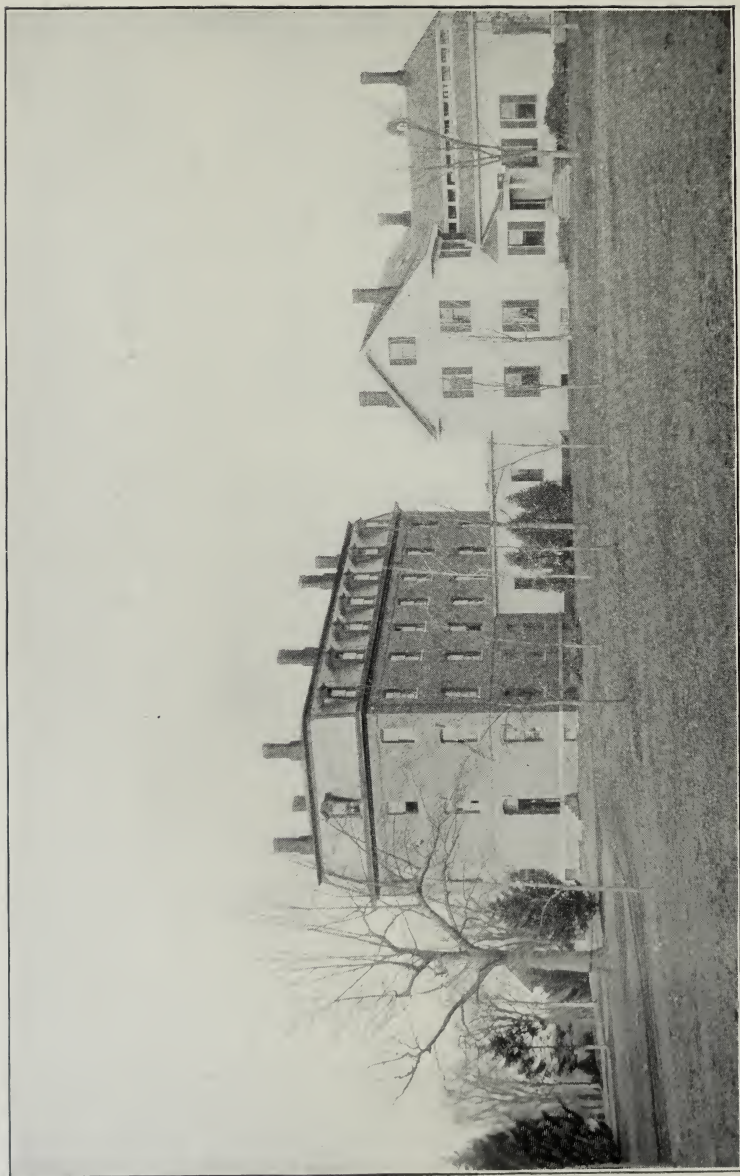
The College Regulations for the government of the College in regard to the selection of studies, standings and grades, absences from recitations and examinations, rhetorical exercises, entrance conditions, leave of absence, attendance upon church and chapel, penalties, examinations and athletics are printed in full in the annual report of the President for the year ending December 31, 1894.

By these regulations, the quota of regular studies for each student is made to be such as to require, for a minimum, seventeen hours, and, for a maximum, twenty hours of class room work each week. In the application of this rule, two hours of laboratory

work and of other exercises not requiring preparation, count as one. The character of the work of members of the Sophomore and Freshman classes is announced by numerical standings on a scale of one hundred. Only the general character of the work of members of the Senior and Junior classes is reported by assigning each student to one of four grades.

Excuses for absence from individual exercises are not required. Each student is expected to pursue his work in a manly way, absenting himself from college exercises only when he has sufficient reasons for doing so. Of these reasons he is to be the judge, but a student who is absent from ten per cent or more of the exercises in any study, is not admitted to the final examination. A student who fails to pass at any examination, is absent or is excluded from any examination will have two opportunities to take special examinations in the study, one immediately before the beginning of each of the next two succeeding terms. If he is absent without sufficient reason from both of these special examinations, or fails to pass at one or the other, he is required to recite with the next class.





THE DOMITORY.

## EXPENSES.

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Tuition and rooms in the dormitory are free. The regular college term charges are :—

Heating and lighting of public rooms, .....	\$7.50
Military and physical culture, .....	1.00
Reading room, .....	1.00
Incidentals (including janitor's services, etc.),.	5.50

Total, .....	\$15.00
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As the college year is divided into two terms, the annual charges will be \$30.

Other expenses vary according to the course of study and the tastes of the student. The most important item will be for board. In the college boarding house each student pays his share of the cost of supplies and a weekly sum, varying with the number of boarders, but not exceeding 60 cents, for the services of the steward and his assistants. The amount should not exceed \$3.00 per week, and will usually be less. Board may be obtained in clubs or private families at slightly higher prices.

Rooms in the dormitory are free, but students supply their own furniture, and pay for heat and light. The heating of one room, suitable for two persons, will usually cost about \$10.00 a term. No student will be allowed to room in the dormitory whose conduct is in any way objectionable.

Students in the chemical laboratory, physical laboratory, and shops pay for materials used and apparatus destroyed. These charges will amount to about \$3.00 per term in the chemical laboratory; to \$1.00 a term in the physical laboratory; and to \$5.00 each for the courses in carpentry, forge-work, and machine work.

The cost of text-books will average almost exactly \$7.50 a term throughout the course. These may be bought from the college librarian at cost, but must be paid for on delivery. The



expense can be decreased by buying second hand books and selling them when used.

Students are charged for all damages done to college property or to that of other students.

Each student is required to supply himself with a military uniform; but this should not be considered as involving an additional expense, since it will take the place of another suit, and can be purchased at a price considerably below that ordinarily charged for a civilian suit of equal quality.

The trustees have prescribed a uniform consisting of dark blue blouse, with State of Maine buttons, and gold braid on cuffs; trousers of lighter blue; blue cap with gold wreath ornament; white duck trousers for hot weather; overcoat of dark blue beaver cloth, of ulster length, with broad collar and detachable cape. Students are not required to buy the overcoat unless an overcoat is needed. It is suitable for general use, and costs \$15.00. Students are required to wear their uniforms during military exercises, and are allowed to do so at other times. The uniform can be obtained of Robinson & Co. of Bangor, at very low prices, fixed by competitive bids. Students are at liberty to purchase of other persons, subject to the approval of the military instructor, who is required to see that the quality and fit are equal to those of the Robinson uniforms. The prices for the year ending November 30, 1895, are as follows: blouse \$7.00; cloth trousers \$5.00; three pairs of duck trousers \$3.00; cap \$1.50; three pairs of gloves 60c; three belts 30c; total, \$17.40.

## COLLEGE ORGANIZATIONS.

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FRATERNITIES.—The following college fraternities are represented in the college: The Q. T. V. Fraternity, The B. Θ. Π. Fraternity, The K. Σ. Fraternity, The A. T. Ω. Fraternity.

COLLEGE ASSOCIATIONS.—The following associations for literary and other purposes exist among the students: The Civil Engineering Society, The Young Men's Christian Association, The Literary Society, The Athletic Association, The Maine State College Publishing Association, The Maine State College Electrical Society, The Reading Room Association, The Shakspeare Society, The College Press Club, The College Band, and the College Orchestra.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.—The Young Men's Christian Association, composed of students, has for its object the promotion of Christian fellowship among its members and aggressive Christian work. Among its members are leaders in the athletic, social and intellectual life of the College. This united effort of the Christian young men to elevate the moral, social and spiritual life of the students has the hearty support of the Faculty. The Association maintains a series of lectures by eminent clergymen of the State, members of the Faculty, and other persons.

THE ALUMNI ASSOCIATIONS.—The following associations of the alumni have been organized: THE EAST MAINE ASSOCIATION—E. M. Blanding, Bangor, *President*. THE WEST MAINE ASSOCIATION—S. W. Bates, Portland, *President*; E. H. Elwell, Portland, *Secretary*. THE BOSTON ASSOCIATION—L. C. Southard, *President*. THE NEW YORK ASSOCIATION—A. J. Caldwell, *President*; L. W. Riggs, *Secretary*. THE WASHINGTON (D. C.) ASSOCIATION—F. Lamson-Scribner, *President*. THE PACIFIC ASSOCIATION—A. W. Saunders, Pullman, Washington,

*President*; Hugo Clark, Seattle, Washington, *Secretary*. THE NORTH MAINE ASSOCIATION—N. H. Martin, Fort Fairfield, Me., *Secretary*.

### THE GENERAL ALUMNI ASSOCIATION.

H. M. ESTABROOKE, PRESIDENT, *Orono*.

H. S. WEBB, RECORDING SECRETARY, *Orono*.

RALPH K. JONES, CORRESPONDING SECRETARY, *Boston, Mass.*

WALTER FLINT, TREASURER, *Orono*.

L. H. MERRILL, NECROLOGIST, *Orono*.

### CLASS SECRETARIES.

E. J. HASKELL,	.....	Class of 1872,	.....	<i>Westbrook.</i>
J. M. OAK,	.....	Class of 1873,	.....	<i>Bangor.</i>
J. I. GURNEY,	.....	Class of 1874,	..	<i>Dorchester, Mass.</i>
E. F. HITCHINGS,	.....	Class of 1875,	.....	<i>Bucksport.</i>
E. M. BLANDING,	.....	Class of 1876,	.....	<i>Bangor.</i>
S. W. GOULD,	.....	Class of 1877,	.....	<i>Skowhegan.</i>
JOHN LOCKE, JR.,	.....	Class of 1878,	.....	<i>Portland.</i>
F. E. KIDDER,	.....	Class of 1879,	.....	<i>Denver, Col.</i>
A. H. BROWN,	.....	Class of 1880,	.....	<i>Oldtown.</i>
H. M. PLAISTED,	.....	Class of 1881,	....	<i>St. Louis, Mo.</i>
W. R. HOWARD,	.....	Class of 1882,		<i>Saxton's River, Vt.</i>
L. W. TAYLOR,	.....	Class of 1883,	.....	<i>Pittsfield.</i>
G. H. ALLEN,	.....	Class of 1884,	.....	<i>Portland.</i>
J. N. HART,	.....	Class of 1885,	.....	<i>Orono.</i>
R. K. JONES,	.....	Class of 1886,	....	<i>Boston, Mass.</i>
D. W. COLBY,	.....	Class of 1887,	.....	<i>Orono.</i>
T. G. LORD,	.....	Class of 1888,	.....	<i>Skowhegan.</i>
NELLIE W. REED,	.....	Class of 1889,	.....	<i>Stillwater.</i>
N. C. GROVER,	.....	Class of 1890,	.....	<i>Orono.</i>
H. G. MENGES,	.....	Class of 1891,	....	<i>Everett, Mass.</i>
G. F. ATHERTON,	.....	Class of 1892,	..	<i>Cape Elizabeth.</i>
G. F. ROWE,	.....	Class of 1893,	.....	<i>Bangor.</i>
J. M. KIMBALL,	.....	Class of 1894,	.....	<i>Bangor.</i>

## THE COLLEGE PUBLICATIONS.

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THE ANNUAL CATALOGUE OF THE MAINE STATE COLLEGE.—This contains statements of the courses of study, lists of the trustees, faculty, and students, and other information relating to the College.

THE ANNUAL REPORT OF THE TRUSTEES, PRESIDENT, AND TREASURER TO THE GOVERNOR AND COUNCIL OF THE STATE OF MAINE.—The reports of the Trustees and President include an account of the general affairs and interests of the College for the year, reports from the heads of the various departments of instruction, and the report from the director of the Experiment Station covering in detail its expenses, operations, investigations, and results.

THE COLLEGE BULLETINS.—These are occasional publications containing reports of the investigations or researches made by the College officers, or other information relating to the College of public interest.

THE COLLEGE CIRCULARS.—These are small occasional pamphlets, issued for special purposes.

THE EXPERIMENT STATION BULLETINS.—These are popular accounts of the results of Station work which relate directly to farm practice. At least four and usually twelve are issued each year.

THE CADET.—This is a monthly magazine published during the College year by an association of the students. It is devoted to the interests of the College, its students, and alumni.

THE PRISM.—This is an annual published by the Junior Class. It contains information in regard to the College and its various organizations, and is elaborately illustrated.

## THE COMMENCEMENT.

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### THE PROGRAMME.

The Commencement exercises of 1894 were as follows:—

Saturday, June 16, Junior Exhibition.

Sunday, June 17, Baccalaureate Sermon, by the President.

Monday, June 18, College Convocation, including report of the Examining Committee, reports of departments and student enterprises and the awarding of prizes; the Exhibition Drill; Inspection of College Buildings; Presentation of a portrait of Ex-President Fernald; Commencement Oration by Hon. Edwin Willits, of Washington, D. C.

Tuesday, June 19, Meeting of the Trustees; Fire Drill; Reception by the Q. T. V. and Beta Theta Pi Fraternities; Reception by the President.

Wednesday, June 20, Commencement; Commencement Dinner; Meeting of the Alumni Association; Commencement Concert.

Thursday, June 21, Class Day Exercises.

### DEGREES.

The first degree was conferred, in course, on the following persons as shown:

Frank Colburn Bowler, B. M. E., Orono.

Edward Henry Cowan, B. C. E., Orono.

George Parker Cowan, B. C. E., Bangor.

Leroy Tolford Durham, B. C. E., Monroe.

Charles Edward Gilbert, B. M. E., Orono.

Frank Gilman Gould, B. C. E., Orono.

Jesse Alexander Gray, B. S., Oldtown.

George Harry Hall, B. M. E., Bangor.

Augustus Daniel Hayes, B. C. E., Belfast.

Alva Thomas Jordan, B. S., Lexington, Ky.

Wallace Hight Jose, B. S., Newport.

James Mayberry Kimball, B. C. E., Bangor.  
Herbert Murray, B. S., Rockland.  
Leon Orlando Norwood, B. C. E., Union.  
George Washington Rumball, B. M. E., Harrington.  
Edward Butler Wood, B. M. E., Camden.

The second degree was conferred on the following persons upon presentation of satisfactory theses and proof of professional and scientific work extending over a period of not less than three years :

Ralph Jesse Arey, C. E., Winslow, Ariz.  
Herbert Austin Hall, C. E., Prescott, Ariz.  
Allen Crosby Hardison, C. E., Santa Paula, Calif.  
William Alton Valentine, M. E., Philadelphia, Penn.  
Ralph Holbrook Wight, C. E., Green Bay, Wis.  
Miss Jennie Chase Michaels, M. S., Stillwater.

The degree of Doctor of Philosophy was conferred, for eminent scientific attainments in architecture, upon presentation of proof of professional work in print, upon Frank Eugene Kidder, of Denver, Colorado.

## SCHOLARSHIPS AND PRIZES.

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### SCHOLARSHIPS.

The trustees have decreed that any person who shall pay to the treasurer a sum not less than seven hundred and fifty dollars for the endowment of a scholarship may have the privilege of assigning to it such name as he may prefer.

**THE KIDDER SCHOLARSHIP.**—The Kidder Scholarship was endowed by Frank E. Kidder, Ph. D., of Denver, Colorado, a graduate of this College in the class of 1879, to be awarded to a member of the Junior class to be selected by the President and the Faculty of the College.

### PRIZES.

**THE PRENTISS PRIZE**, the gift of Mrs. Henry E. Prentiss of Bangor, will be awarded to that member of the Junior class who shall present the best oration at the Junior exhibition. In the award of this prize both the composition and the delivery of the oration will be considered.

**THE PRENTISS DECLAMATION PRIZE**, the gift of Mrs. Henry E. Prentiss of Bangor, for excellence in elocution, will be awarded to the best speaker in the Sophomore class.

**THE LIBBEY PRIZE**, the gift of the Hon. Samuel Libbey of Orono, will be awarded to the student who shall present the best essay upon an agricultural topic. The essays must be handed to the Professor of Agriculture on or before the first Monday in June.

**THE CUMBERLAND COUNTY PRIZE**, the gift of Mr. E. T. Burrows of Portland, will be awarded to that member of the Freshman class who shall write the best extemporaneous essay upon an assigned subject. In the award of this prize rhetorical accuracy will be the chief thing considered.

**THE KENNEBEC COUNTY PRIZE**, the gift of the Hon. William T. Haines of Waterville, will be awarded to that member of the Senior class who shall write the best essay on Applied Electricity.



THE FRANKLIN DANFORTH PRIZE, the gift of Eugene F. Danforth of Skowhegan, a graduate of the College in the class of 1877, in memory of his father, Franklin Danforth, will be awarded to that member of the Senior class in the Agricultural course who shall attain the highest standing.

THE PENOBSCOT COUNTY PRIZE, the gift of the Hon. Henry Lord of Bangor, will be awarded to that member of the Junior class, who shall excel in public debate.

THE AROOSTOOK COUNTY PRIZE, the gift of the Hon. Charles P. Allen of Presque Isle, will be awarded to that member of the Freshman class who shall excel in algebra.

THE MILITARY PRIZE, the gift of an alumnus of the College, will be awarded to that member of the Senior class who shall write the best essay on a military subject.

MENTION FOR MILITARY EXCELLENCE.—In accordance with the orders of the Adjutant General of the United States Army, the two cadets who attain the highest standing in the military department are reported to his office immediately after commencement, and their names are printed in the U. S. Army Registry.

The Prizes were awarded last year as follows :

The Prentiss Prize to Oscar Llewellyn Grover, of Redlands, California.

The Prentiss Declamation Prize, to Marcus Libby Urann, of Sullivan.

The Libbey Prize, to Lore Alford Rogers, of Patten.

The Sophomore Standing Prize, to Charles Partridge Weston of Madison.

The Freshman Standing Prize, to William Thomas Brastow, of Rockport.

Mention for highest standing in the military department was made of Edward Butler Wood, Augustus Daniel Hayes, and Herbert Murray.

## COLLEGE HONORS.

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### SPEAKERS AT COMMENCEMENT, JUNE 1894.

Frank Colburn Bowler, Orono; Edward Henry Cowan, Orono; George Parker Cowan, Bangor; Leroy Tolford Durham, Monroe; Charles Edward Gilbert, Orono; Frank Gilman Gould, Orono; Jesse Alexander Gray, Oldtown; George Harry Hall, Bangor; James Elmore Harvey, Readfield; Augustus Daniel Hayes, Belfast; Wallace Hight Jose, Newport; James Mayberry Kimball, Bangor; Herbert Murray, Rockland; Leon Orlando Norwood, Union; George Washington Rumball, Harrington; Edward Butler Wood, Camden.

### SPEAKERS AT THE JUNIOR EXHIBITION, JUNE 1894.

Wendell Wyse Chase, Auburn; Frank Damon, Hampden; Merton Eugene Ellis, West Guilford; Leroy Rowell Folsom, Corinna; Charles Albert Frost, Monmouth; Oscar Llewellyn Grover, Redlands, Calif.; James William Martin, Waltham, Mass.; Earl Clinton Merrill, East Eddington; Albion Moulton, Hiram; Clifford James Pattee, Belfast.

### SPEAKERS AT THE SOPHOMORE PRIZE DECLAMATION CONTEST, JUNE 1894.

Edward Everett Gibbs, Bridgton; Everett Gray Glidden, Augusta; George Wesley Jeffery, North Monmouth; Perley Burnham Palmer, Bridgton; Joseph William Randlette, Richmond; Paul Dudley Sargent, Machias; Stanley John Steward, Foxcroft; Mark Libby Urann, Sullivan; Perley Walker, Embden; Charles Partridge Weston, Madison.

## THE KITTREDGE LOAN FUND.

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This fund, amounting to nearly one thousand dollars, was established by Nehemiah Kittredge of Bangor. It is in the control of the President and Treasurer of the College, by whom it is loaned to needy students. In the deed of gift, it was prescribed that no security should be required further than personal notes bearing interest at the prevailing rate. Loans are made on the conditions that the interest shall be paid promptly, and that the principal shall be returned from the first earnings after graduation.

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## THE COBURN LOAN FUND.

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This fund, amounting to about one hundred dollars, was established by Abner Coburn of Skowhegan, to be used in aiding needy students in the purchase of the military uniform.

## PUBLIC WORSHIP.

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Religious services of a simple character are held in the College chapel every morning except Saturday. All students are required to be present. Every student is required to attend one service on Sunday in one of the churches of the village. Voluntary religious services under the direction of the Young Men's Christian Association are held weekly.

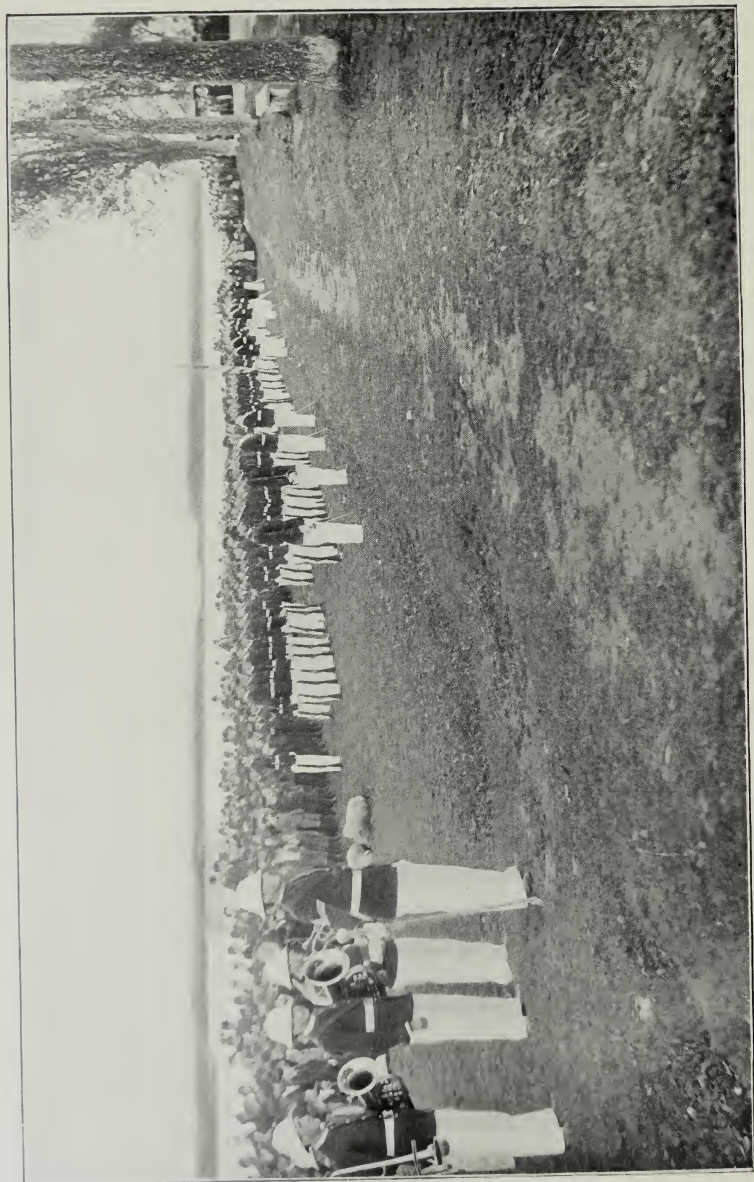
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## LOCATION.

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The College has a pleasant and healthful location in Penobscot county and town of Orono, half way between the villages of Orono and Stillwater, three miles from the city of Oldtown, and nine miles from the city of Bangor. The village of Orono is upon the Maine Central Railroad which gives easy access to all parts of the State. The Stillwater river, a tributary of the Penobscot, flows in front of the buildings, forming the western boundary of the College campus.





DRESS PARADE IN CAMP.



## MILITARY INSTRUCTION.

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Military instruction is required by United States law. The department is under the charge of a graduate of the United States Military Academy, an officer of the regular army of the United States, detailed by the President of the United States for this purpose. The course has especial reference to the duties of officers of the line. Cadet rifles, ammunition and accouterments are furnished by the War Department. The students are organized into an infantry battalion of three companies, band and signal corps, officered by cadets selected for their character, soldierly bearing, and military efficiency. The battalion is instructed and disciplined in accordance with rules prescribed by the President of the United States. The three cadets of the Senior class who attain the highest standing in the military department are reported to the Adjutant General of the U. S. Army, immediately after commencement, and their names are printed in the U. S. Army Register. Cadets who have satisfactorily completed the course in military science receive, at graduation, a certificate of military proficiency and are reported to the Adjutant General of Maine.

The following students distinguished themselves as marksmen during the year ending June 1894:—George Harry Hall, Augustus Daniel Hayes, George Washington Rumball, Charles Edward Gilbert, Earl Clinton Merrill, Albion Moulton, Oscar Llewellyn Grover, Alfred Howard Buck, Merton Eugene Ellis, Gardiner Benson Wilkins, Howard Evelith Stevens, Davis Tillson Achorn.

The following students were awarded special military certificates at the Commencement of 1884, and were reported to the Adjutant General of Maine:—Edward Butler Wood, Augustus Daniel Hayes, Herbert Murray, James Mayberry Kimball, George Harry Hall, Wallace Hight Jose, Frank Gilman Gould, Edward Henry Cowan, Frank Coburn Bowler, Leon Orlando Norwood, George Washington Rumball, Leroy Tolford Durham.

The first three were reported to the Adjutant General of the U. S. Army.



## THE ORGANIZATION OF THE BATTALION.

## OFFICERS AND NON-COMMISSIONED OFFICERS.

Second Lieutenant MARK LESLIE HERSEY, 9th U. S. Infantry,  
Commanding.

## FIELD AND STAFF.

Major—Cadet HAROLD SHERBURNE BOARDMAN.  
First Lieutenant and Adjutant—Cadet EARL CLINTON MERRILL.  
First Lieutenant and Quartermaster—Cadet WENDELL WYSE  
CHASE.  
First Lieutenant and Chief Signal Officer—Cadet FRANK DAMOG.

## NON-COMMISSIONED STAFF.

Sergeant Major—FRANK LEONARD MARSTON.  
Quartermaster Sergeant—Cadet CHARLES PARTRIDGE WESTON.

## COMPANY A.

Captain ..... Cadet ALBION MOULTON.  
First Lieutenant.... Cadet OSCAR LLEWELLYN GROVER.  
Second Lieutenant.. Cadet CHARLES DURA THOMAS.  
First Sergeant..... Cadet JOSEPH WILLIAM RANDLETTE.  
Sergeant ..... Cadet HARRY CLIFFORD FARRELL.  
Sergeant ..... Cadet EVERETT GRAY GLIDDEN.  
Sergeant ..... Cadet FREDERICK ANDREW HOBBS.  
Corporal ..... Cadet ARTHUR JOHN DALOT.  
Corporal ..... Cadet CHARLES SYDNEY BRYER.  
Corporal ..... Cadet GEORGE GREENWOOD LEAVETT.  
Corporal ..... Cadet ALLEN ROGERS.  
Corporal ..... Cadet JOHN PARKS CHASE.

## COMPANY B.

Captain .....Cadet MELVILLE FREDERICK ROLLINS.  
 First Lieutenant....Cadet CHARLES ALBERT FROST.  
 Second Lieutenant..Cadet ORA WILLIS KNIGHT.  
 First Sergeant.....Cadet EDWARD EVERETT GIBBS.  
 Sergeant .....Cadet BEECHER DAVIS WHITCOMB.  
 Sergeant .....Cadet GARDINER BENSON WILKINS.  
 Sergeant .....Cadet GILBERT TOLMAN.  
 Sergeant .....Cadet ROY LYNDE FERNALD.

## COMPANY C.

Captain .....Cadet ISAAC GLIDDEN CALDERWOOD.  
 First Lieutenant....Cadet WALTER MARSHALL MURPHY.  
 Second Lieutenant..Cadet HALBERT GARDINER ROBINSON.  
 First Sergeant.....Cadet PERLEY BURNHAM PALMER.  
 Sergeant .....Cadet PAUL DUDLEY SARGENT.  
 Sergeant .....Cadet GEORGE WESLEY JEFFREY.  
 Sergeant .....Cadet HERMAN STEPHEN MARTIN.  
 Sergeant .....Cadet JOHN ALVAH STARR.  
 Corporal .....Cadet STEPHEN SANS BUNKER.  
 Corporal .....Cadet ERNEST HENRY MACLOON.  
 Corporal .....Cadet WILLIAM LAWRENCE HOLYOKE.  
 Corporal .....Cadet CHARLES HENRY FARNHAM.  
 Corporal .....Cadet JUSTIN ROBERT CLARY.

## COLOR GUARD.

Color Sergeant .....Cadet PERLEY WALKER.  
                                   Cadet GILBERT GUSTAVUS ATWOOD.  
                                   Cadet LEROY TOLFORD FOLSOM.

## BAND.

First Lieutenant....Cadet ALFRED HOWARD BUCK.  
 Second Lieutenant..Cadet MERTON EUGENE ELLIS.  
 Sergeant .. . . . .Cadet FRANK EDWIN WEYMOUTH.  
 Corporal .....Cadet STANWOOD HILL COSMEY.  
 Corporal .....Cadet ANDREW JARVIS PATTEN.

## SIGNAL SECTION.

Second Lieutenant..Cadet CLIFFORD JAMES PATTEE.

## CATALOGUE OF STUDENTS.

## POST GRADUATES.

Cowan, George Parker, B. C. E.,	<i>Bangor,</i>	Bangor.
Hall, George Harry, B. M. E.,	<i>Bangor,</i>	Head House.
Jack, Walter Dows, B. S.,	<i>Brunswick,</i>	Young's Hotel.
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## SENIOR CLASS.

Atwood, Gustavus Gilbert,	<i>South Carver, Mass.,</i>	Mr. John [Spearin's.
Boardman, Harold Sherburne,	<i>Bangor,</i>	3 B. Θ. II. House.
Buck, Alfred Howard,	<i>Foxcroft,</i>	2 B. Θ. II. House.
Calderwood, Isaac Glidden,	<i>Vinalhaven,</i>	6 Q. T. V. House.
Chase, Wendell Wyze,	<i>Auburn,</i>	2 B. Θ. II. House.
Damon, Frank,	<i>Hampden,</i>	Mr. Alanson Ken- ney's.
Ellis, Merton Eugene,	<i>North Guilford,</i>	8 Q. T. V. [House.
Folsom, LeRoy Rowell,	<i>Corinna,</i>	Mr. Alanson Ken- ney's.
Frost, Charles Albert,	<i>Monmouth,</i>	8 Q. T. V. House.
Grover, Oscar Llewellyn,	<i>Redlands, Calif.,</i>	Maples.
de Haseth, Gerardus Andries,	<i>Curacao,</i>	5 Q. T. V. House.
Knight, Ora Willis,	<i>Bangor,</i>	Mrs. P. B. Graves'.
Martin, James William,	<i>Boston, Mass.,</i>	1 B. Θ. II. House.
Merrill, Earl Clinton,	<i>East Eddington,</i>	3 B. Θ. II. [House.
Moulton, Albion,	<i>Hiram,</i>	5 Oak Hall.
Murphy, Walter Marshall,	<i>South Norridgewock,</i>	Mr. Paul [Webster's.
Pattee, Clifford James,	<i>Belfast,</i>	8 Q. T. V. House.
Robinson, Halbert Gardiner,	<i>Patten,</i>	Mr. Elijah Webster's.
Rollins, Melville Frederick,	<i>Bangor,</i>	13 Oak Hall.
Thomas, Charles Dura,	<i>Brownville,</i>	5 Oak Hall.

## JUNIOR CLASS.

Farrell, Harry Clifford,	<i>Machias</i> ,	18 Oak Hall.
Fernald, Roy Lynde,	<i>Winterport</i> ,	10 B. Θ. II. House.
Gibbs, Edward Everett,	<i>Bridgton</i> ,	7 B. Θ. II. House.
Glidden, Everett Gray,	<i>Augusta</i> ,	7 Q. T. V. House.
Gooch, Fred Burton,	<i>Yarmouth</i> ,	9 Oak Hall.
Hobbs, Frederick Andrew,	<i>Alfred</i> ,	13 Oak Hall.
Jeffery, George Wesley,	<i>North Monmouth</i> ,	25 Oak Hall.
Kidder, Elmer Elwood,	<i>Winslow</i> ,	Mr. Paul Webster's.
Libby, Frank Joshua,	<i>Richmond</i> ,	Q. T. V. House.
Manter, Ralph Barton,	<i>Milo</i> ,	11 Oak Hall.
Martin, Herman Stephen,	<i>Foxcroft</i> ,	16 Oak Hall.
Marston, Frank Leonard,	<i>Bangor</i> ,	3 Q. T. V. House.
McLeod, Daniel James,	<i>Brewer</i> ,	26 Oak Hall.
Morse, Percy Franklin,	<i>West Hampden</i> ,	2 Oak Hall.
Niles, Herbert Lester,	<i>Levant</i> ,	9 Oak Hall.
Page, Warren Robbins,	<i>Hampden</i> ,	Mr. John Spearen's.
Palmer, Perley Burnham,	<i>South Bridgton</i> ,	7 B. Θ. II. [House.
Pride, Frank Perley,	<i>Westbrook</i> ,	12 Oak Hall.
Randlette, Joseph William,	<i>Richmond</i> ,	18 Oak Hall.
Rogers, Lore Alford,	<i>Patten</i> ,	2 Oak Hall.
Sargent, Paul Dudley,	<i>Machias</i> ,	5 Q. T. V. House.
Starr, John Alvah,	<i>Orland</i> ,	7 Q. T. V. House.
Steward, Stanley John,	<i>Foxcroft</i> ,	Mr. John Spearen's.
Tolman, Gilbert,	<i>Milo</i> ,	12 Oak Hall.
Walker, Perley,	<i>Emden</i> ,	4 Q. T. V. House.
Weston, Charles Partridge,	<i>Madison</i> ,	2 B. Θ. II. House.
Weymouth, Frank Edwin,	<i>Medford Center</i> ,	Mr. Paul Web- [ster's.
Whitcomb, Beecher Davis,	<i>Easton</i> ,	6 Oak Hall.
Wilkins, Gardiner Benson,	<i>Brownville</i> ,	6 Oak Hall.

## SOPHMORE CLASS.

Albee, George Plummer,	<i>Richmond</i> , Mrs. P. B. Groves'.
Atwood, Edward Moseley,	<i>Hampden</i> , 21 Oak Hall.
Bird, Tyler Hanson,	<i>Belfast</i> , Mr. Paul Webster's.
Brastow, William Thomas,	<i>Rockport</i> , 4 Q. T. V. House.
Brown, William Bourne,	<i>Jay</i> , Mr. John Spearen's.
Bryer, Charles Sydney,	<i>Boothbay</i> , 8 Q. T. V. House.
Bunker, Stephen Sans,	<i>Bar Harbor</i> , 5 Q. T. V. House.
Chase, John Parks,	<i>Bath</i> , 4 B. Θ. II. House.
Clary, Justin Robert,	<i>Hallowell</i> , 4 Q. T. V. House.
Coburn, William Bridgham,	<i>Sherman Mills</i> , Mr. John [Spearen's.
Cosmey, Stanwood Hill,	<i>Bangor</i> , 4 B. Θ. II. House.
Cowan, Arthur Sydney,	<i>Orono</i> , Mr. Chas. S. Cowan's.
Crowell, Walter Newton,	<i>Beverly, Mass</i> , Mrs. J. H. [Emery's.
Dalot, Arthur John,	<i>Dalotville</i> , 3 Q. T. V. House.
Farnham, Charles Henry,	<i>Beverly, Mass.</i> , 19 Oak Hall.
Flint, Bert Whitaker,	<i>Thorndike</i> , 15 Oak Hall.
Goodridge, Perley Francis,	<i>Orono</i> , Mr. O. T. Goodridge's.
Gorham, Frank Edward,	<i>Round Pond</i> , 15 Oak Hall.
Gould, Vernon Kimball,	<i>Milo</i> , 11 Oak Hall.
Heath, Stanley Jacob,	<i>Bangor</i> , Home.
Holyoke, William Lawrence,	<i>Brewer</i> , Prof. A. B. Aubert's.
Leavitt, George Greenwood,	<i>South Berwick</i> , Mr. Paul Web- [ster's.
Macloon, Ernest Henry,	<i>Deering</i> , 6 B. Θ. II. House.
Merrill, Edward Arthur,	<i>Winn</i> , 16 Oak Hall.
Patten, Andrew Jarvis,	<i>Cherryfield</i> , 14 Oak Hall.
Porter, Joseph White Humphrey,	<i>Stillwater</i> , Home.
Porter, Byron Frank,	<i>Stillwater</i> , Home.
Rogers, Allen,	<i>Hampden</i> , Prof. A. E. Rogers'.
Russell, Myron Roswell,	<i>Vernon, Vt.</i> , Mr. Dexter Mer- [rill's.
Simpson, Erastus Roland,	<i>Brunswick</i> , 3 B. Θ. II. House.
Stevens, Howard Evelith,	<i>Bluehill</i> , Mrs. P. B. Groves'.
Upton, Edwin Carlton,	<i>Bath</i> , 6 B. Θ. II. House.
White, Harvey Aaron,	<i>Brewer</i> , Brewer.

## FRESHMAN CLASS.

Adams, Henry Gilbert,	<i>Cumberland,</i>	30 Oak Hall.
Anderson, Ralph Sidney,	<i>Yarmouth,</i>	29 Oak Hall.
Archie, John Francis,	<i>Hallowell,</i>	17 Oak Hall.
Bailey, Fred Wesley,	<i>Belfast,</i>	Mr. L. P. Harris's.
Bartlette, Lester Franklin,	<i>Hampden,</i>	Mr. John Spearen's.
Barron, Wilson Darling,	<i>Dexter,</i>	Mr. Paul Webster's.
Brann, Leo Lin Jefferson,	<i>Gardiner,</i>	9 B. Θ. II. House.
Bryant, Edwin Scammon,	<i>Portland,</i>	23 Oak Hall.
Burnell, Albro Lenard,	<i>Woodfords,</i>	4 B. Θ. II. House.
Burns, Fred Eugene,	<i>Westbrook,</i>	33 Oak Hall.
Clark, Fred Robinson,	<i>Yarmouth,</i>	29 Oak Hall.
Coney, Edward,	<i>Bangor,</i>	39 Oak Hall.
Crowell, Charles Parker,	<i>Orono,</i>	Mrs. J. H. Emery's.
Davis, Edward Harmon,	<i>Auburn,</i>	Mr. L. P. Harris's.
Day, Harry Earl,	<i>Gorham,</i>	6 Q. T. V. House.
Dearborn, John Washington,	<i>Bradford,</i>	41 Oak Hall.
Decelle, William Edwin,	<i>Portland,</i>	43 Oak Hall.
Despeaux, Humphrey Elmore,	<i>Brunswick,</i>	Mr. L. P. Harris's.
Dillingham, Samuel Clark,	<i>Portland,</i>	8 B. Θ. II. House.
Dolley, Walter,	<i>Gorham,</i>	32 Oak Hall.
Dow, Leroy Eugene,	<i>Portland,</i>	23 Oak Hall.
Dunn, Rena Ethel,	<i>Orono,</i>	Mr. Olin C. Dunn's.
Dunn, Rossell Olin,	<i>Orono,</i>	Mr. Olin C. Dunn's.
Edwards, Llewellyn Nathaniel,	<i>Otisfield,</i>	26 Oak Hall.
Ellis, Walter Lincoln,	<i>Waterville,</i>	Mr. Paul Webster's.
Emerson, Fred Augustus,	<i>Winthrop, Mass.,</i>	35 Oak Hall.
Emery, Edgar James,	<i>Hampden,</i>	—.
Fernandez, Grace Lillian,	<i>Sangerville,</i>	Boarding House.
Files, William Rolfe,	<i>West Gorham,</i>	32 Oak Hall.
Frost, George Sherman,	<i>Bridgewater, Ct.,</i>	25 Oak Hall.
Gibbs, Bernard Alston,	<i>Glenburn,</i>	41 Oak Hall.
Hamlin, Ralph,	<i>Orono,</i>	Mrs. Laura Hamlin's.
Haney, William Wallace,	<i>Eastport,</i>	Mr. Solomon Gee's.
Higgins, Harry Allison,	<i>Deering,</i>	32 Oak Hall.
Hopkins, Fred Weston,	<i>Bangor,</i>	21 Oak Hall.
Jose, Hallie Lewis,	<i>Dexter,</i>	Mr. Alanson Kenney's.
Johnson, Bertrand Randall,	<i>Deering,</i>	9 B. Θ. II. House.



Johnston, Cecil Chestnut,	<i>Fort Fairfield,</i>	20 Oak Hall.
Lawrence, George Warren,	<i>South Gardiner,</i>	44 Oak Hall.
Libbey, Herbert Oscar,	<i>East Rochester, N. H.,</i>	34 Oak [Hall.
Libby, Albion Dana Topcliffe,	<i>North Scarboro,</i>	Mr. John [Spearen's.
Libby, Herbert Ivory,	<i>Biddeford,</i>	6 Q. T. V. House.
Lincoln, Harry Matthew,	<i>Bangor,</i>	28 Oak Hall.
Manson, Ray Herbert,	<i>Farmingdale,</i>	44 Oak Hall.
Marks, Homer Elbridge,	<i>Woodfords,</i>	6 B. O. II. House.
Merrill, Adelbert Samuel,	<i>Belfast,</i>	Mr. P. Wall's.
Merrill, Dana True,	<i>East Auburn,</i>	28 Oak Hall.
Merrill, Elmer Drew,	<i>East Auburn,</i>	28 Oak Hall.
Merrill, Harrison Pratt,	<i>Turner Center,</i>	Mr. L. P. Har- [ris's.
Morrill, Walter Jean,	<i>Madison,</i>	35 Oak Hall.
Moulton, Waitstill Douglass,	<i>Wales,</i>	Mrs. J. H. Emery's.
Nowlan, Edwin Ernest,	<i>Lowell, Mass.,</i>	27 Oak Hall.
Pearce, Charles Abram,	<i>Fort Fairfield,</i>	20 Oak Hall.
Rockwood, Ralph Hubbard,	<i>Waterville,</i>	17 Oak Hall.
Ryther, Leon Edwin,	<i>Bondsville, Mass,</i>	35 Oak Hall.
Seavey, Haller David,	<i>Bangor,</i>	22 Oak Hall.
Small, Albert Clifford,	<i>Lisbon Center,</i>	34 Oak Hall.
Smith, George Albert,	<i>Auburn,</i>	Mr. L. P. Harris's.
Smith, William Cobb,	<i>Gray,</i>	43 Oak Hall.
Sprague, Alden Percy,	<i>Vanceboro,</i>	Mr. Simmons's.
Starbird, Alfred Andrews,	<i>South Paris,</i>	39 Oak Hall.
Stevens, Ray Parker,	<i>Brooklin,</i>	7 Q. T. V. House.
Sturgis, Edwin Albert,	<i>Lewiston,</i>	33 Oak Hall.
Tarr, Roderic Desmond,	<i>Biddeford,</i>	6 Q. T. V. House.
Taylor, Arthur Horace,	<i>Machias,</i>	5 Q. T. V. House.
Thomas, John Franklin,	<i>Brownville,</i>	5 Oak Hall.
Tolman, Fred Moses,	<i>Carroll,</i>	27 Oak Hall.
Tolman, Wilfred Reuben,	<i>Augusta,</i>	37 Oak Hall.
Tucker, Fred Crandall,	<i>Lubec,</i>	Mr. John Spearen's.
Warner, Albert Frank,	<i>Ansonia, Conn.,</i>	37 Oak Hall.
Watson, Lee Merton,	<i>Boston, Mass.,</i>	32 Oak Hall.
Webber, Mortimer Asa,	<i>Ivoryton, Conn.,</i>	20 Oak Hall.
Webster, Charles Staples,	<i>Portland,</i>	8 B. O. II. House.



Welch, Warner Edwin,	<i>Orono</i> , Mr. O. C. Welch's.
Whipple, Albert Lawrence,	<i>Solon</i> , 14 Oak Hall.
White, Horace Loring,	<i>Portland</i> , 30 Oak Hall.
Whittemore, George Arthur,	<i>Framingham, Mass.</i> , 4 Q. T. V. [House.]
Wiswell, Carl Gardner,	<i>East Machias</i> , Mrs. Beals's.
York, Jabez,	<i>Bangor</i> , 26 Oak Hall.

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## LIBRARY ECONOMY STUDENTS.

Hamilton, Geneva Ring,	<i>Orono</i> , Mr. H. A. Hamilton's.
Larrabee, Anna J.,	<i>Kennebunk</i> , College Boarding [House.]
Perkins, Ethel Ada,	<i>Orono</i> , Mr. Stephen P. Per- kins's.
Ring, Virginia Mary,	<i>Orono</i> , Mr. Charles B. Ring's.
Sheridan, Lena Matilda,	<i>Orono</i> , Prof. A. B. Aubert's.
Vinall, Rena Pearl,	<i>Orono</i> , Mr. Phineas Vinall's.

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## SPECIAL STUDENTS.

Achorn, Davis Tillson, M. E.,	<i>Rockland</i> , Mr. Paul Webster's.
Austin, Hollis Eaton, Ag.,	<i>Lamoine</i> , Mr. Simmons'.
Blanchard, Franz Hodsdon, E. E.,	<i>Dexter</i> , Mr. Alanson Kenney's.
Buffum, Charles Nathaniel, M. E.,	<i>Orono</i> , 10 B. O. H. House.
Brown, Charles Winchester,	<i>West Glover, Vt.</i> , Mrs. Beals's.
Dickerson, Fred William, E. E.,	<i>Belfast</i> , Mr. O. T. Goodridge's.
Dow, Harry Eugene, Ch.,	<i>Searsport</i> , 23 Oak Hall.
Drummond, Augustus Bidwell, Ch.,	<i>Bangor</i> , Bangor.
Dyer, William Elmer, C. E.,	<i>Calais</i> , 45 Oak Hall.
Ellms, Alonzo Lemont, Ag.,	<i>Ripley</i> , Mr. Simmons's.
Farrar, Lottie Gertrude, Ch.,	<i>Bangor</i> , Mr. Charles Buffum's.
French, Frank Luther, M. E.,	<i>Solon</i> , Mrs. Frank Budway's.
Fuller, James Elmo, M. E.,	<i>Hartland</i> , Mr. C. H. Colburn's.
Goodridge, Nathan Eaton, M. E.,	<i>Orono</i> , Mr. O. T. Goodridge's.
Griffin, Loring Blanchard, Ag.,	<i>Stockton Springs</i> , Mr. Sim- mons's.
Hamilton, Robert Whitman, Ag.,	<i>Saco</i> , Mr. Elijah Webster's.
Herald, Walter, C. E.,	<i>Calais</i> , 45 Oak Hall.
Hooper, James Henry, Ag.,	<i>Turner</i> , Mrs. Groves'.
Hopkins, Kendall Charles, M. E.,	<i>Camden</i> , Oak Hall.

Lapham, Isaac Newton, Ag.,	<i>Pittston,</i>	Mr. O. C. Dunn's.
Lawrence, Percival Farnham, Ch.,	<i>Bangor,</i>	Bangor.
Norris, George Hassell, Ch.,	<i>Elinham, Norfolk, England.</i>	
Oakes, Louis, C. E.,	<i>Foxcroft,</i>	Mr. John Spearen's.
Page, Ernest Elmer, Ag.,	<i>Kenduskeag,</i>	Mr. O. C. Dunn's.
Reid, John Rowan, E. E.,	<i>Bangor,</i>	36 Oak Hall.
Ricker, Daniel Wesley, Ag.,	<i>East Auburn,</i>	Mr. O. C. Dunn's.
Sawtelle, William Otis, Ch.	<i>Bangor,</i>	Bangor.
Sawyer, Charles Jewett, E. E.,	<i>Bangor,</i>	Bangor.
Shurtleff, Herbert Arthur, Ag.,	<i>South Livermore,</i>	Mrs. Groves'.
Smith, Arthur Nealley, M. E.,	<i>Winterport,</i>	19 Oak Hall.
Swett, Irving Cooper, E. E.,	<i>Bangor,</i>	22 Oak Hall.
Vinall, Robert Preston, E. E.,	<i>Orono,</i>	Mr. Phineas Vinall's.
Watts, Clarence Everett,	<i>East Machias,</i>	Mrs. Beal's.

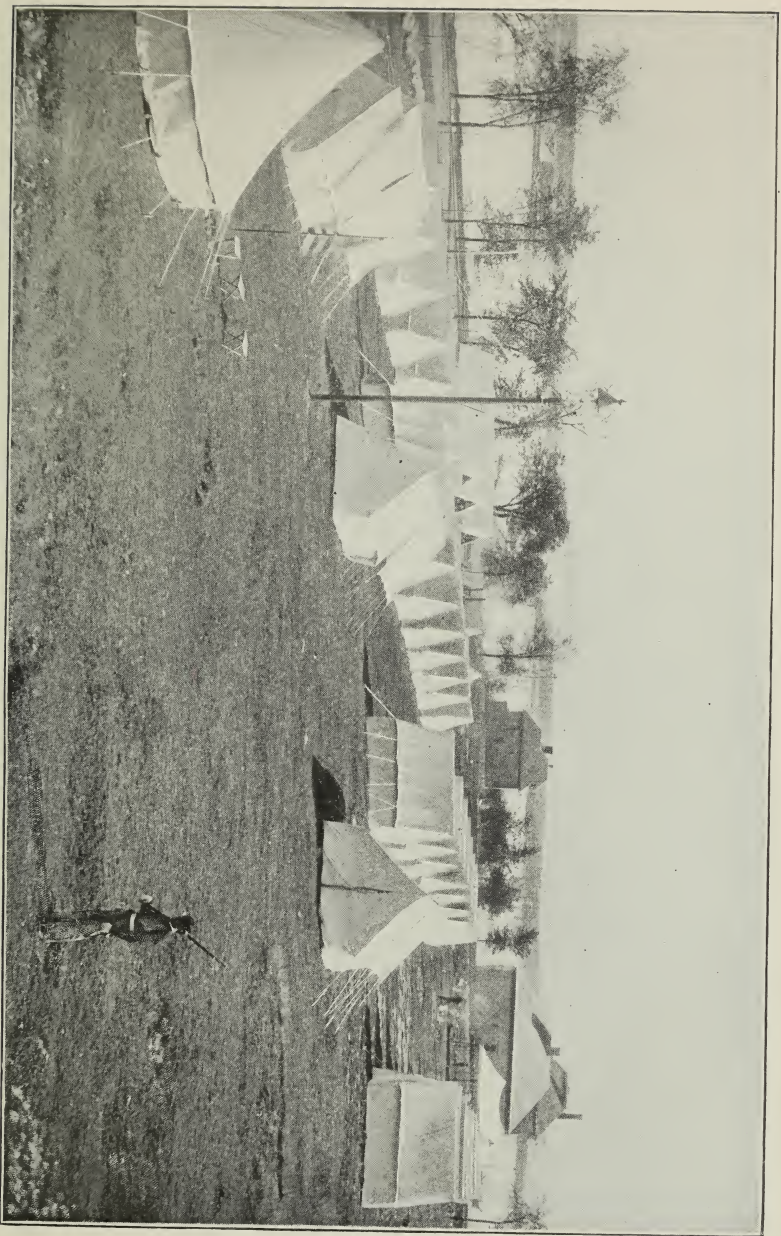
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Abbreviations.—Ag., agriculture; C. E., civil engineering; Ch., chemistry; E. E., electrical engineering; M. E., mechanical engineering.

## SUMMARY.

Post graduate students, .....	3
Seniors, .....	20
Juniors, .....	29
Sophomores, .....	33
Freshmen, .....	79
Library Economy students, .....	6
Special students, .....	33
Total, .....	203



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